W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

wwPDB EM Validation Summary Report (i)

Feb 12, 2026 – 04:28 PM EST

PDB ID	:	9O5A / pdb_00009o5a
EMDB ID	:	EMD-70135
Title	:	The KICSTOR-GATOR1 complex
Authors	:	Bayly-Jones, C.; Lupton, C.J.; Chang, Y.G.; Ellisdon, A.M.
Deposited on	:	2025-04-09
Resolution	:	3.20 Å(reported)

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 3.20 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		2
Ramachandran outliers		0
Sidechain outliers		1.0%

Worse *Better*

▮ Percentile relative to all structures
◻ Percentile relative to all EM structures

Metric	Model-Map Fit Percentile Ranks	Value
Q-score		0.467

Worse *Better*

▮ Percentile relative to all EM structures
◻ Percentile relative to EM structures of similar resolution
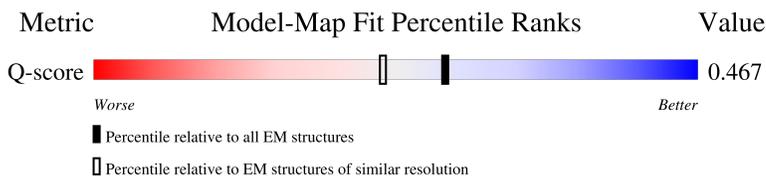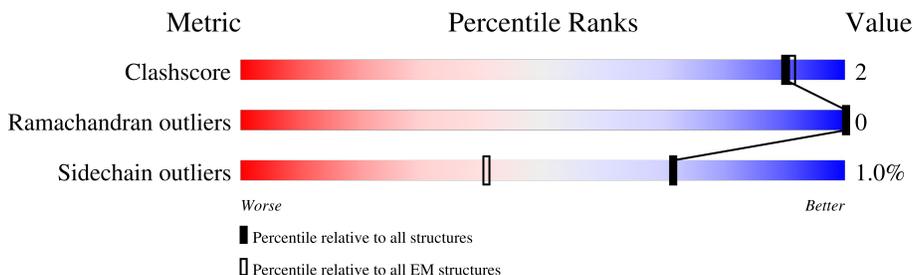
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	15020 (2.70 - 3.70)

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	H	401	88% · 8%
2	B	1621	58% · 38%
3	D	3451	64% · 33%
4	E	457	85% · 11%

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Mol	Chain	Length	Quality of chain
5	F	466	77% · 20%
6	G	466	78% 6% 16%
7	C	590	75% · 22%

2　Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 42618 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 GATOR complex protein NPRL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	H	370	Total 2993	C 1915	N 503	O 556	S 19	0	0

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	-20	MET	-	expression tag	UNP Q8WTW4
H	-19	GLY	-	expression tag	UNP Q8WTW4
H	-18	TYR	-	expression tag	UNP Q8WTW4
H	-17	PRO	-	expression tag	UNP Q8WTW4
H	-16	TYR	-	expression tag	UNP Q8WTW4
H	-15	ASP	-	expression tag	UNP Q8WTW4
H	-14	VAL	-	expression tag	UNP Q8WTW4
H	-13	PRO	-	expression tag	UNP Q8WTW4
H	-12	ASP	-	expression tag	UNP Q8WTW4
H	-11	TYR	-	expression tag	UNP Q8WTW4
H	-10	ALA	-	expression tag	UNP Q8WTW4
H	-9	ASP	-	expression tag	UNP Q8WTW4
H	-8	LEU	-	expression tag	UNP Q8WTW4
H	-7	ASN	-	expression tag	UNP Q8WTW4
H	-6	GLY	-	expression tag	UNP Q8WTW4
H	-5	GLY	-	expression tag	UNP Q8WTW4
H	-4	GLY	-	expression tag	UNP Q8WTW4
H	-3	GLY	-	expression tag	UNP Q8WTW4
H	-2	GLY	-	expression tag	UNP Q8WTW4
H	-1	SER	-	expression tag	UNP Q8WTW4
H	0	THR	-	expression tag	UNP Q8WTW4

- Molecule 2 is a protein called GATOR1 complex protein DEPDC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	1004	Total 8226	C 5317	N 1358	O 1506	S 45	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-17	MET	-	expression tag	UNP O75140
B	-16	GLY	-	expression tag	UNP O75140
B	-15	ASP	-	expression tag	UNP O75140
B	-14	TYR	-	expression tag	UNP O75140
B	-13	LYS	-	expression tag	UNP O75140
B	-12	ASP	-	expression tag	UNP O75140
B	-11	ASP	-	expression tag	UNP O75140
B	-10	ASP	-	expression tag	UNP O75140
B	-9	ASP	-	expression tag	UNP O75140
B	-8	LYS	-	expression tag	UNP O75140
B	-7	GLY	-	expression tag	UNP O75140
B	-6	GLY	-	expression tag	UNP O75140
B	-5	GLY	-	expression tag	UNP O75140
B	-4	GLY	-	expression tag	UNP O75140
B	-3	GLY	-	expression tag	UNP O75140
B	-2	ALA	-	expression tag	UNP O75140
B	-1	SER	-	expression tag	UNP O75140
B	0	THR	-	expression tag	UNP O75140

- Molecule 3 is a protein called KICSTOR complex protein SZT2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	2316	18448	11838	3246	3255	109	0	0

There are 19 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	-20	MET	-	expression tag	UNP Q5T011
D	-19	GLU	-	expression tag	UNP Q5T011
D	-18	MET	-	expression tag	UNP Q5T011
D	-17	ASP	-	expression tag	UNP Q5T011
D	-16	TYR	-	expression tag	UNP Q5T011
D	-15	LYS	-	expression tag	UNP Q5T011
D	-14	ASP	-	expression tag	UNP Q5T011
D	-13	ASP	-	expression tag	UNP Q5T011
D	-12	ASP	-	expression tag	UNP Q5T011
D	-11	ASP	-	expression tag	UNP Q5T011
D	-10	LYS	-	expression tag	UNP Q5T011
D	-9	GLY	-	expression tag	UNP Q5T011
D	-8	GLY	-	expression tag	UNP Q5T011

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-7	GLY	-	expression tag	UNP Q5T011
D	-6	GLY	-	expression tag	UNP Q5T011
D	-5	GLY	-	expression tag	UNP Q5T011
D	-4	ALA	-	expression tag	UNP Q5T011
D	-3	SER	-	expression tag	UNP Q5T011
D	-2	THR	-	expression tag	UNP Q5T011

- Molecule 4 is a protein called KICSTOR complex protein kaptin.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	406	3185	2019	552	604	10	0	0

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-20	MET	-	initiating methionine	UNP Q9Y664
E	-19	GLY	-	expression tag	UNP Q9Y664
E	-18	TYR	-	expression tag	UNP Q9Y664
E	-17	PRO	-	expression tag	UNP Q9Y664
E	-16	TYR	-	expression tag	UNP Q9Y664
E	-15	ASP	-	expression tag	UNP Q9Y664
E	-14	VAL	-	expression tag	UNP Q9Y664
E	-13	PRO	-	expression tag	UNP Q9Y664
E	-12	ASP	-	expression tag	UNP Q9Y664
E	-11	TYR	-	expression tag	UNP Q9Y664
E	-10	ALA	-	expression tag	UNP Q9Y664
E	-9	ASP	-	expression tag	UNP Q9Y664
E	-8	LEU	-	expression tag	UNP Q9Y664
E	-7	ASN	-	expression tag	UNP Q9Y664
E	-6	GLY	-	expression tag	UNP Q9Y664
E	-5	GLY	-	expression tag	UNP Q9Y664
E	-4	GLY	-	expression tag	UNP Q9Y664
E	-3	GLY	-	expression tag	UNP Q9Y664
E	-2	GLY	-	expression tag	UNP Q9Y664
E	-1	SER	-	expression tag	UNP Q9Y664
E	0	THR	-	expression tag	UNP Q9Y664

- Molecule 5 is a protein called KICSTOR subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	F	373	Total 3037	C 1971	N 509	O 546	S 11	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	-20	MET	-	initiating methionine	UNP Q96MD2
F	-19	GLY	-	expression tag	UNP Q96MD2
F	-18	TYR	-	expression tag	UNP Q96MD2
F	-17	PRO	-	expression tag	UNP Q96MD2
F	-16	TYR	-	expression tag	UNP Q96MD2
F	-15	ASP	-	expression tag	UNP Q96MD2
F	-14	VAL	-	expression tag	UNP Q96MD2
F	-13	PRO	-	expression tag	UNP Q96MD2
F	-12	ASP	-	expression tag	UNP Q96MD2
F	-11	TYR	-	expression tag	UNP Q96MD2
F	-10	ALA	-	expression tag	UNP Q96MD2
F	-9	ASP	-	expression tag	UNP Q96MD2
F	-8	LEU	-	expression tag	UNP Q96MD2
F	-7	ASN	-	expression tag	UNP Q96MD2
F	-6	GLY	-	expression tag	UNP Q96MD2
F	-5	GLY	-	expression tag	UNP Q96MD2
F	-4	GLY	-	expression tag	UNP Q96MD2
F	-3	GLY	-	expression tag	UNP Q96MD2
F	-2	GLY	-	expression tag	UNP Q96MD2
F	-1	SER	-	expression tag	UNP Q96MD2
F	0	THR	-	expression tag	UNP Q96MD2
F	443	SER	ALA	variant	UNP Q96MD2

- Molecule 6 is a protein called KICSTOR complex protein ITFG2.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	391	Total 3066	C 1939	N 525	O 581	S 21	0	0

There are 19 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	-18	MET	-	initiating methionine	UNP Q969R8
G	-17	GLU	-	expression tag	UNP Q969R8
G	-16	GLN	-	expression tag	UNP Q969R8
G	-15	LYS	-	expression tag	UNP Q969R8
G	-14	LEU	-	expression tag	UNP Q969R8

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-13	ILE	-	expression tag	UNP Q969R8
G	-12	SER	-	expression tag	UNP Q969R8
G	-11	GLU	-	expression tag	UNP Q969R8
G	-10	GLU	-	expression tag	UNP Q969R8
G	-9	ASP	-	expression tag	UNP Q969R8
G	-8	LEU	-	expression tag	UNP Q969R8
G	-7	ASN	-	expression tag	UNP Q969R8
G	-6	GLY	-	expression tag	UNP Q969R8
G	-5	GLY	-	expression tag	UNP Q969R8
G	-4	GLY	-	expression tag	UNP Q969R8
G	-3	GLY	-	expression tag	UNP Q969R8
G	-2	GLY	-	expression tag	UNP Q969R8
G	-1	SER	-	expression tag	UNP Q969R8
G	0	THR	-	expression tag	UNP Q969R8

- Molecule 7 is a protein called GATOR complex protein NPRL3.

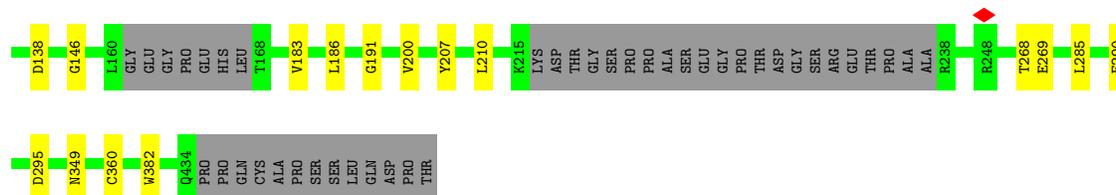| Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	C	461	3663	2347	641	654	21	0	0

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-20	MET	-	expression tag	UNP Q12980
C	-19	GLY	-	expression tag	UNP Q12980
C	-18	TYR	-	expression tag	UNP Q12980
C	-17	PRO	-	expression tag	UNP Q12980
C	-16	TYR	-	expression tag	UNP Q12980
C	-15	ASP	-	expression tag	UNP Q12980
C	-14	VAL	-	expression tag	UNP Q12980
C	-13	PRO	-	expression tag	UNP Q12980
C	-12	ASP	-	expression tag	UNP Q12980
C	-11	TYR	-	expression tag	UNP Q12980
C	-10	ALA	-	expression tag	UNP Q12980
C	-9	ASP	-	expression tag	UNP Q12980
C	-8	LEU	-	expression tag	UNP Q12980
C	-7	ASN	-	expression tag	UNP Q12980
C	-6	GLY	-	expression tag	UNP Q12980
C	-5	GLY	-	expression tag	UNP Q12980
C	-4	GLY	-	expression tag	UNP Q12980
C	-3	GLY	-	expression tag	UNP Q12980

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	GLY	-	expression tag	UNP Q12980
C	-1	SER	-	expression tag	UNP Q12980
C	0	THR	-	expression tag	UNP Q12980

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: GATOR complex protein NPRL2

Chain H:

• Molecule 2: GATOR1 complex protein DEPDC5

Chain B:

• Molecule 3: KICSTOR complex protein SZT2

Chain D: 64%   33%

P2776 SER SER VAL LEU GLY VAL PRO VAL ARG PRO P2787 D2788 K2801 Q2823 T2826 P2827 A2828 T2829 M2830 H2848 Y2849 L2855 F2856 G2864 PRO PRO GLU THR SER GLY PRO PRO ASP GLN ARG HIS ARG GLU PRO GLU SER GLY SER ARG GLY ARG ALA PRO THR SER

CYS GLU SER LEU ASP VAL SER PRO PRO GLY ALA ARG GLU E2906 Y2923 T2927 R2935 PRO PRO SER PRO ALA ARG SER THR SER ARG PRO ARG ALA MET ALA ILE LEU GLY THR GLU GLY ARG GLY GLY PHE SER CYS LYS THR LYS THR ASP GLY SER PRO LYS SER THR SER

SER PRO VAL T2979 S3013 ARG ILE PRO MET GLY GLN ALA VAL ASN S3023 H3050 H3081 R3130 PRO GLY GLY PRO GLU H3136 S3148 L3152 ASP SER GLU GLY LEU R3158 H3159 D3162 A3174 PRO PHE GLU GLU GLN GLY E3181 T3206 ALA ASP MET ARG ARG PHE ARG LYS

PRO PRO ARG LEU PRO PRO GLU GLU PRO ALA PRO GLY SER ALA SER PRO SER PRO GLU ALA SER GLY LEU ILE LEU ALA PRO GLY PRO ALA P3246 P3288 GLY PRO ASP ARG LEU ARG LEU G3296 C3372 F3373 V3374 Q3398 PRO GLN ASP SER GLU SER PRO PRO ALA Q3408 V3419

W3428 L3432

• Molecule 4: KICSTOR complex protein kaptin

Chain E: 85%   11%

MET GLY TYR PRO TYR ASP VAL PRO ASP TYR ALA ASP LEU ASN GLY GLY GLY GLY GLY SER THR MET MET GLY ALA ALA V7 G37 R38 D107 Y116 C117 D118 Y119 C134 D167 P168 A169 E193 S217 D247 V253 S259 ALA ALA LYS GLU THR LYS

ASP ARG PRO LEU GLN D271 L276 V310 T316 V328 L357 F362 H371 L393 V412 E423 ASP GLY ALA GLY ALA GLY PRO ALA GLU ASN ALA ALA SER

• Molecule 5: KICSTOR subunit 2

Chain F: 77%   20%

MET GLY TYR PRO TYR ASP VAL PRO ASP TYR ALA ASP LEU ASN GLY GLY GLY GLY GLY SER THR MET GLY GLU SER ILE PRO LEU ALA ALA PRO VAL PRO VAL GLU Q15 F21 I27 Y30 A33 R41 GLU ALA ASN LYS SER ALA GLY GLY SER TRP LEU SER L54

Q76 LYS LEU GLY GLN SER PHE PHE SER ARG LYS D88 K103 VAL VAL THR GLY ARG GLY ALA LEU GLY GLY THR ALA PRO HIS VAL GLU GLU L121 H176 H177 P178 L189 L216 L223 K232 GLN ARG GLU THR LYS LYS HIS LEU PHE GLY GLY GLN SER GLN LYS

ALA V249 M264 L277 Q280 G321 S322 E323 H328 H331 R337 E338 H383 K388 V389 E409 E414 R415 S443 LYS GLY

• Molecule 6: KICSTOR complex protein ITFG2

Chain G: 78%   6%   16%

MET GLU GLN LYS LEU ILE SER GLU GLU ASP LEU ASN GLY GLY GLY SER THR M1 D40 T41 V45 M64 G69 L81 A86 E87 G88 W89 F90 K99 VAL LEU ASP ALA SER GLY HIS HIS GLU THR LEU ILE GLY GLU E114 Q121 H122 I123 M130

D138 G146 L160 GLY GLU GLY PRO GLU HIS LEU T168 V183 L186 G191 V200 Y207 L210 K215 LYS ASP THR GLY SER PRO PRO ALA SER GLU GLY PRO THR ASP SER ARG GLU THR PRO ALA ALA R238 R248 T268 E269 L285 E290

D295 N349 C360 W382 Q434 PRO PRO GLN CYS ALA PRO SER SER LEU GLN ASP PRO THR

● Molecule 7: GATOR complex protein NPRL3

Chain C:

75%   ·   22%

MET GLY TYR PRO TYR ASP VAL PRO ASP TYR ALA ASP LEU ASN GLY GLY GLY GLY GLY SER THR MET ARG D3 Q29 ARG SER GLN GLU HIS PRO ALA SER GLN THR SER LYS PRO ARG S44 S49 ASN THR GLY ASP HIS ALA ASP GLU GLN ASP G60 Q101 HIS ALA LEU GLY

GLN ILE SER LYS THR ASP PRO SER PRO LYS ARG GLU A118 D182 GLY ASN GLU GLY PRO Q188 L195 C230 Y237 E246 Y326 L336 H359 D360 L361 P362 L365 P371 F377 L381 A382 M393 M413 P416 SER GLU GLU GLU PRO ARG PRO

ARG GLU ASP ASP VAL PRO PHE THR ALA ARG VAL GLY GLY ARG SER LEU SER THR PRO ASN ALA LEU SER PHE GLY SER PRO THR SER SER ASP ASP MET THR LEU THR SER PRO SER MET ASP ASN SER SER ALA GLU LEU LEU PRO SER GLY ASP SER PRO L478 N479 Q480 R481 H493

H525 I561 P569

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	43700	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	1	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	20.188	Depositor
Minimum map value	0.000	Depositor
Average map value	0.026	Depositor
Map value standard deviation	0.385	Depositor
Recommended contour level	1.8	Depositor
Map size (Å)	480.0, 480.0, 480.0	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0, 1.0, 1.0	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	H	0.32	0/3053	0.52	0/4136
2	B	0.33	0/8440	0.48	0/11443
3	D	0.22	0/18908	0.43	0/25693
4	E	0.26	0/3250	0.49	0/4410
5	F	0.22	0/3117	0.45	0/4210
6	G	0.25	0/3126	0.47	0/4241
7	C	0.31	0/3739	0.48	0/5073
All	All	0.26	0/43633	0.46	0/59206

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 ⓘ

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	H	2993	0	3036	9	0
2	B	8226	0	8017	31	0
3	D	18448	0	18505	56	0
4	E	3185	0	3155	9	0
5	F	3037	0	3018	7	0
6	G	3066	0	3031	17	0
7	C	3663	0	3738	11	0
All	All	42618	0	42500	134	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 2.

The worst 5 of 134 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)
7:C:416:PRO:HA	7:C:493:HIS:CE1	2.28	0.67
6:G:360:CYS:HG	6:G:382:TRP:CD1	2.14	0.65
3:D:2384:ASP:OD2	3:D:2646:ARG:NH2	2.35	0.59
2:B:1205:PHE:CD1	2:B:1210:VAL:HG21	2.38	0.58
3:D:2923:TYR:CE2	3:D:2927:ILE:HD11	2.39	0.58

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	H	366/401 (91%)	357 (98%)	9 (2%)	0	100	100
2	B	976/1621 (60%)	940 (96%)	36 (4%)	0	100	100
3	D	2250/3451 (65%)	2173 (97%)	77 (3%)	0	100	100
4	E	402/457 (88%)	381 (95%)	21 (5%)	0	100	100
5	F	363/466 (78%)	351 (97%)	12 (3%)	0	100	100
6	G	383/466 (82%)	364 (95%)	19 (5%)	0	100	100
7	C	449/590 (76%)	431 (96%)	18 (4%)	0	100	100
All	All	5189/7452 (70%)	4997 (96%)	192 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	H	343/365 (94%)	339 (99%)	4 (1%)	67	85
2	B	905/1423 (64%)	899 (99%)	6 (1%)	81	92
3	D	2043/2970 (69%)	2024 (99%)	19 (1%)	75	89
4	E	353/384 (92%)	351 (99%)	2 (1%)	84	92
5	F	337/404 (83%)	332 (98%)	5 (2%)	60	81
6	G	343/401 (86%)	339 (99%)	4 (1%)	67	85
7	C	410/518 (79%)	404 (98%)	6 (2%)	60	81
All	All	4734/6465 (73%)	4688 (99%)	46 (1%)	71	87

5 of 46 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	3372	CYS
5	F	280	GLN
4	E	357	LEU
5	F	189	LEU
6	G	123	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 37 such sidechains are listed below:

Mol	Chain	Res	Type
5	F	326	GLN
7	C	525	HIS
5	F	328	HIS
7	C	259	HIS
3	D	1446	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 oligosaccharides 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-70135. 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 ⓘ

6.1.1   Primary map

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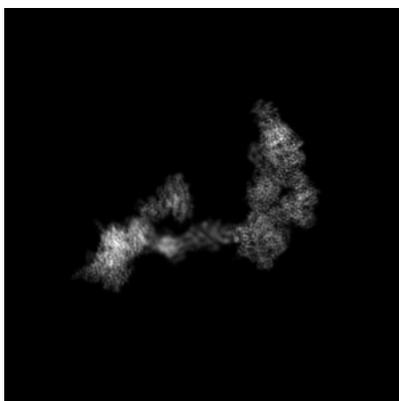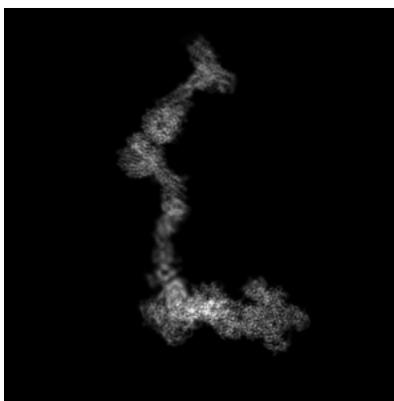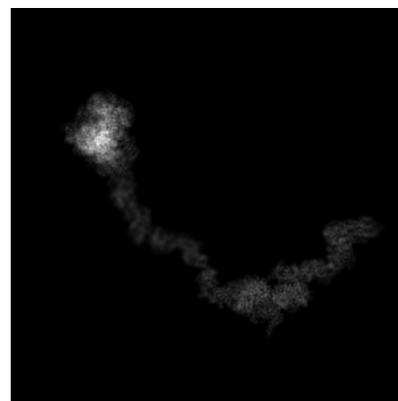
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ
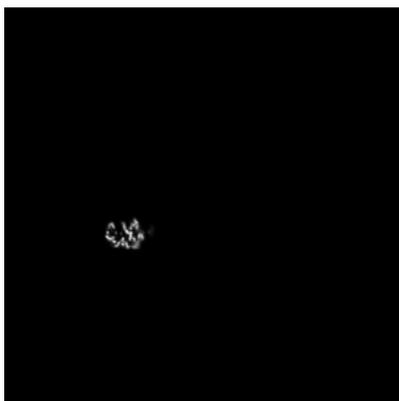
6.2.1   Primary map
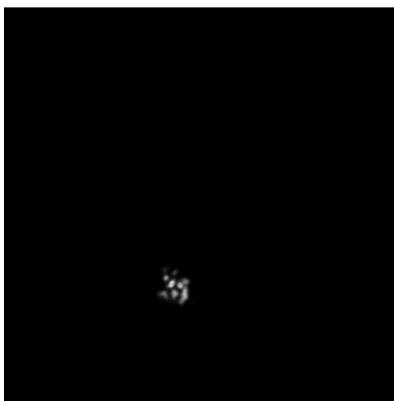
| X Index: 240 | Y Index: 240 | Z Index: 240 |

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

6.3   Largest variance slices ⓘ
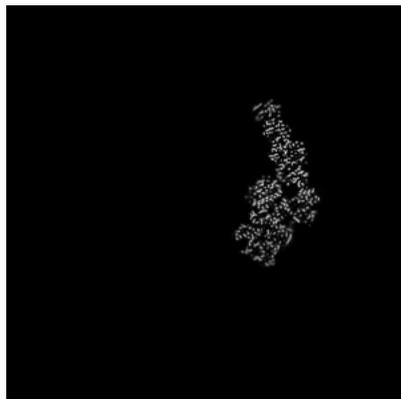
6.3.1   Primary map
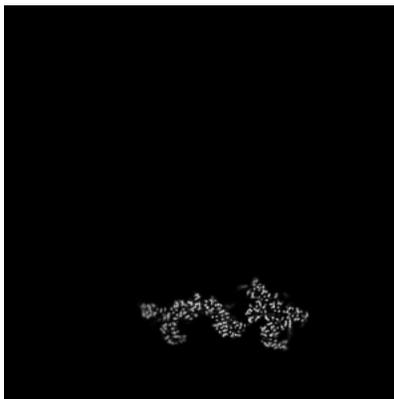
| X Index: 110 | Y Index: 321 | Z Index: 199 |
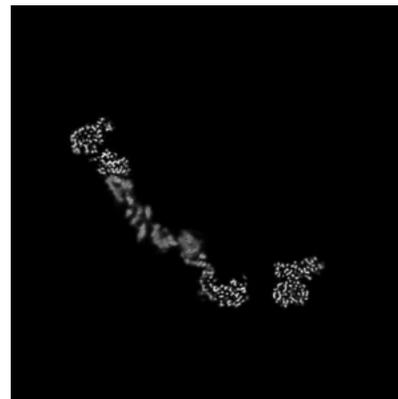
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1   Primary map

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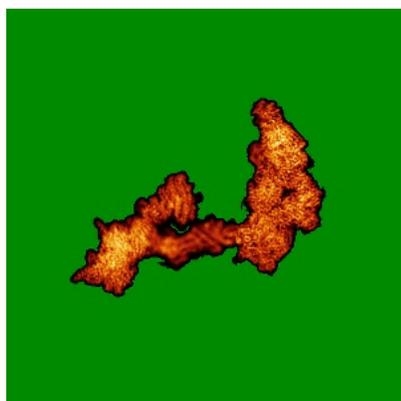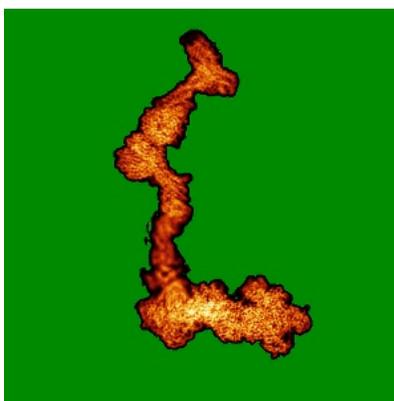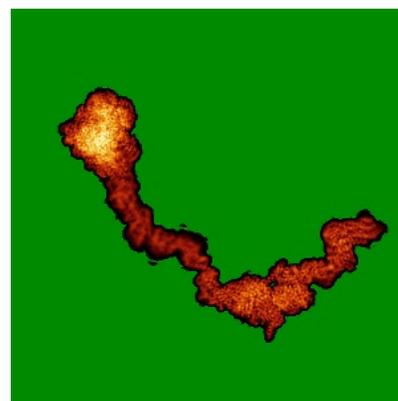
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5   Orthogonal surface views   ⓘ

6.5.1   Primary map

X   Y   Z
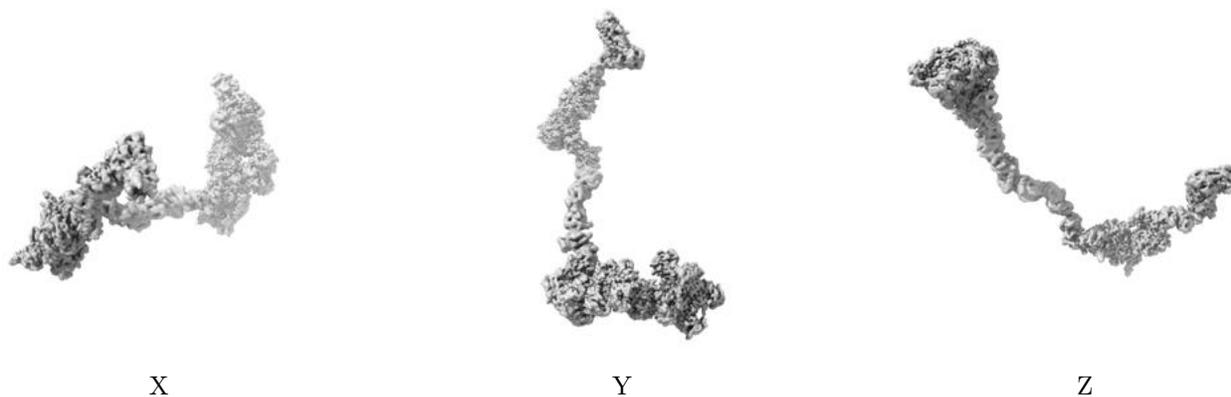
The images above show the 3D surface view of the map at the recommended contour level 1.8. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6   Mask visualisation   ⓘ

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

7   Map analysis ⓘ

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

7.1   Map-value distribution ⓘ
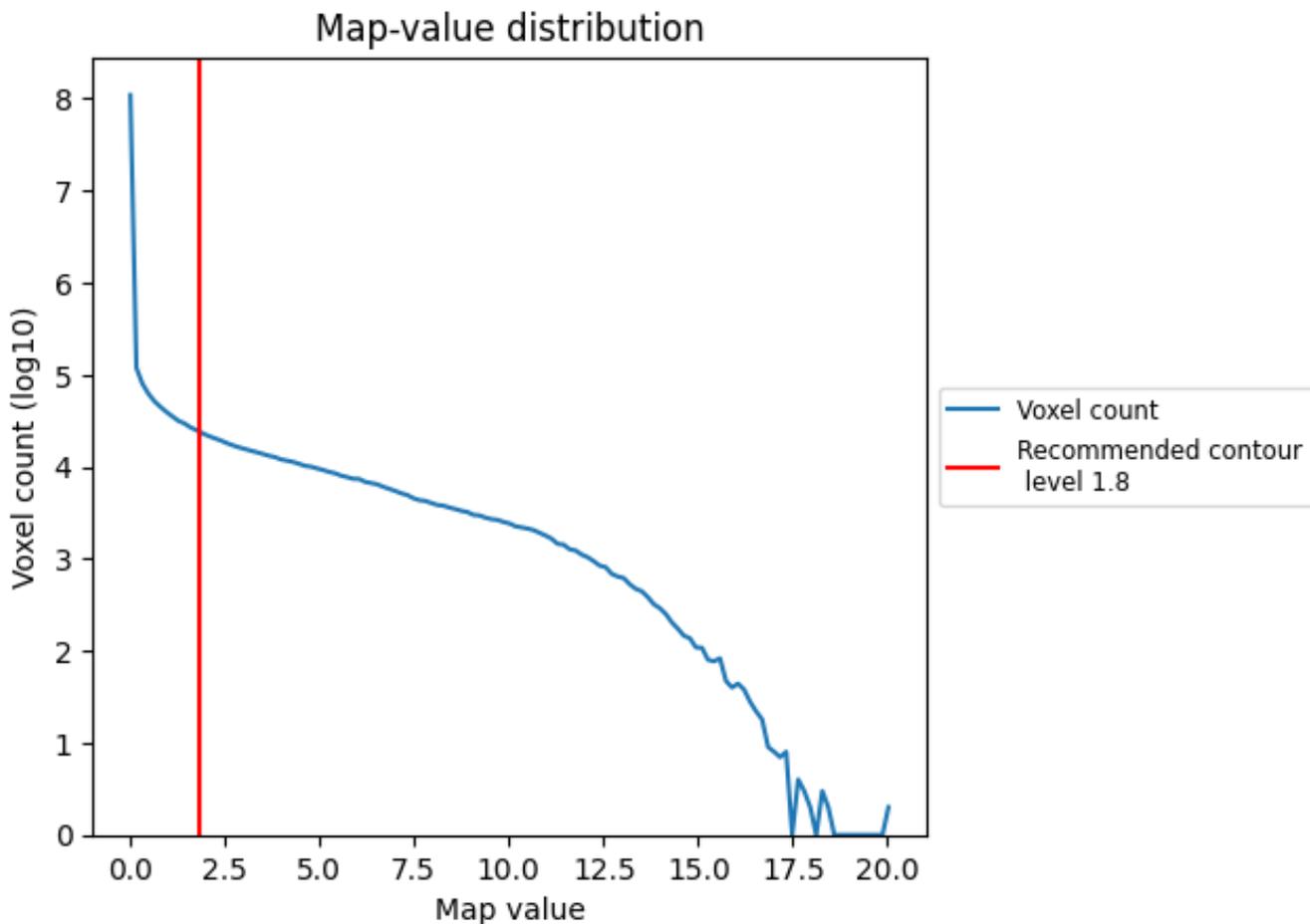
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate (i)
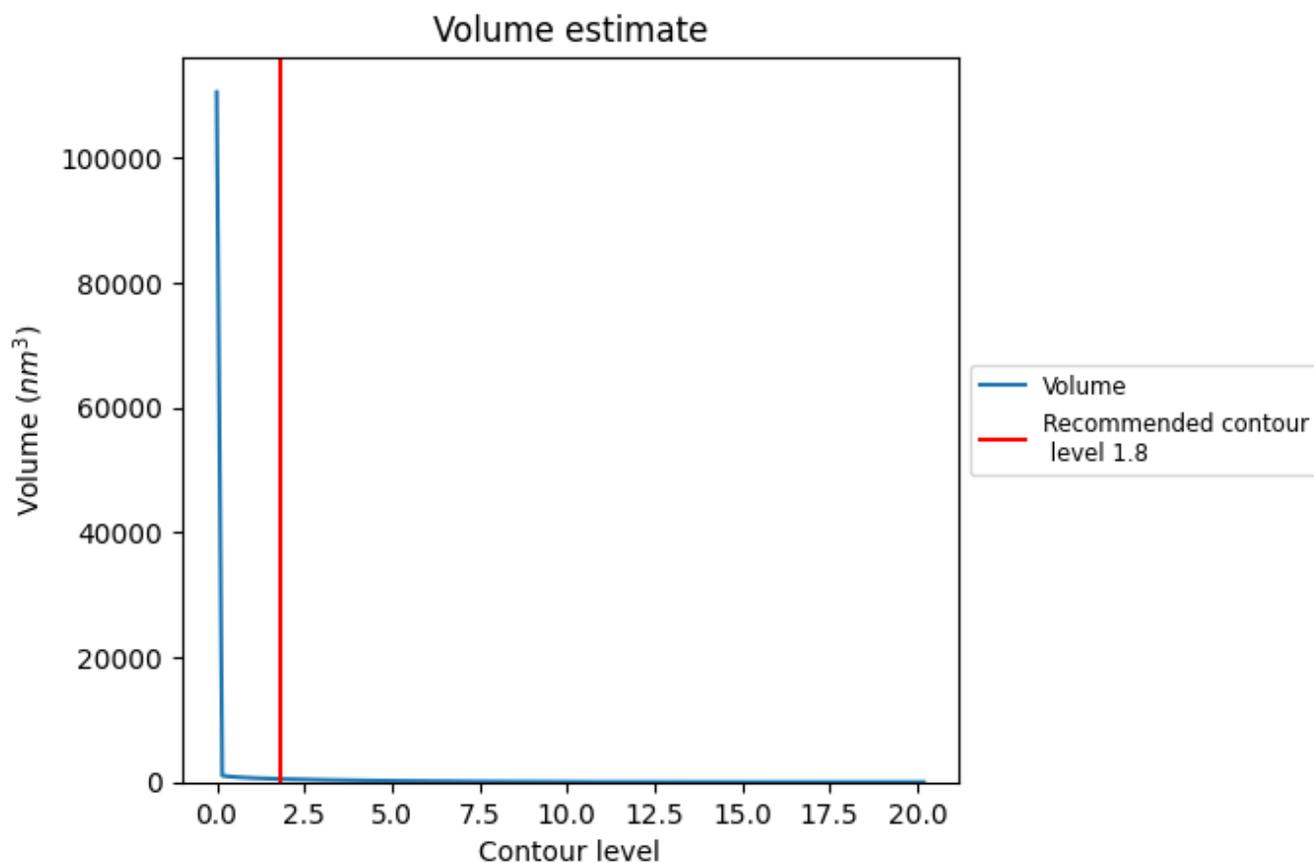
The volume at the recommended contour level is 506 nm^3; this corresponds to an approximate mass of 457 kDa.

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 ⓘ
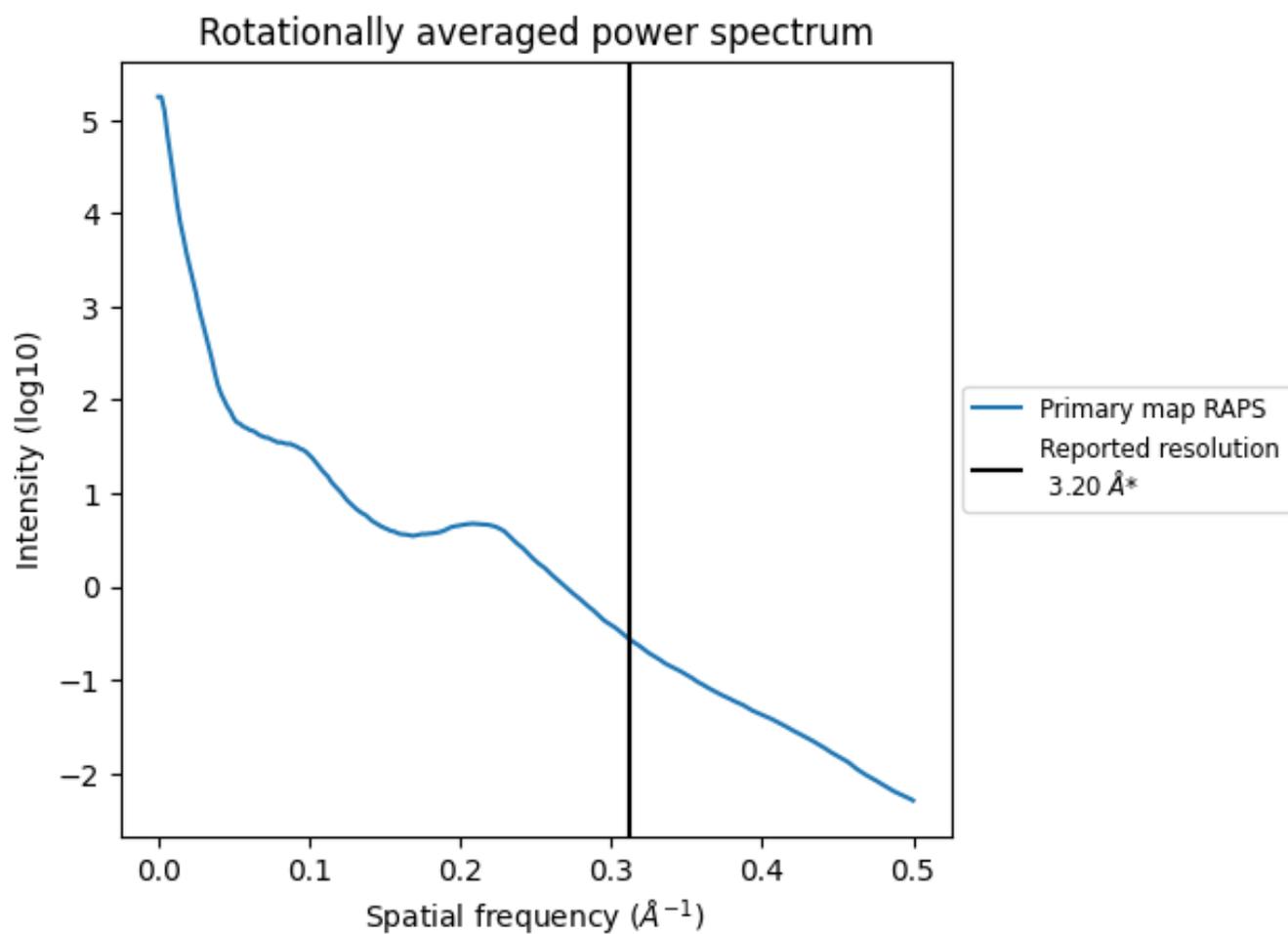
*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

8　Fourier-Shell correlation ⓘ

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

9   Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-70135 and PDB model 9O5A. Per-residue inclusion information can be found in section 3 on page 10.

9.1   Map-model overlay ⓘ

| X | Y | Z |
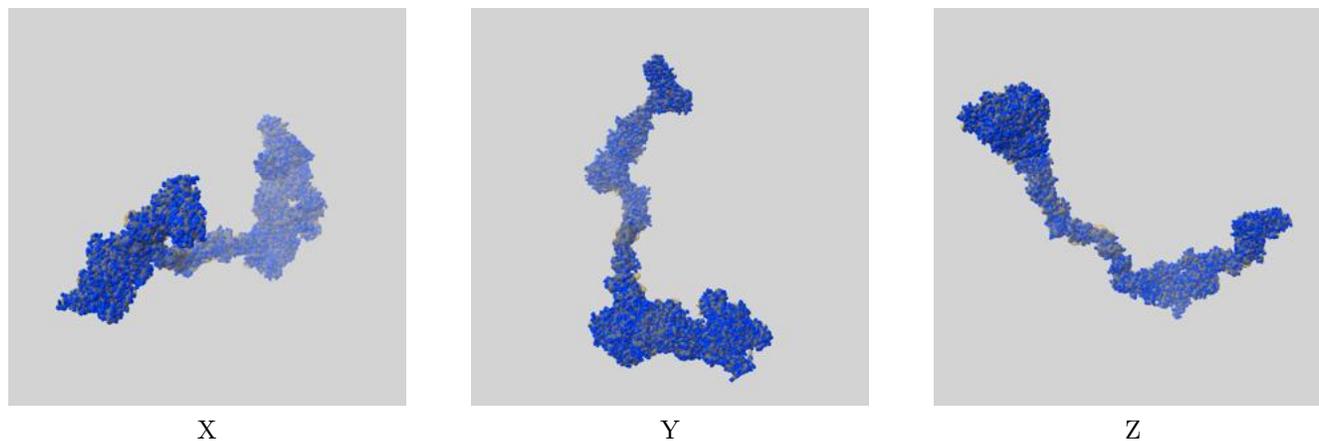
The images above show the 3D surface view of the map at the recommended contour level 1.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2   Q-score mapped to coordinate model ⓘ

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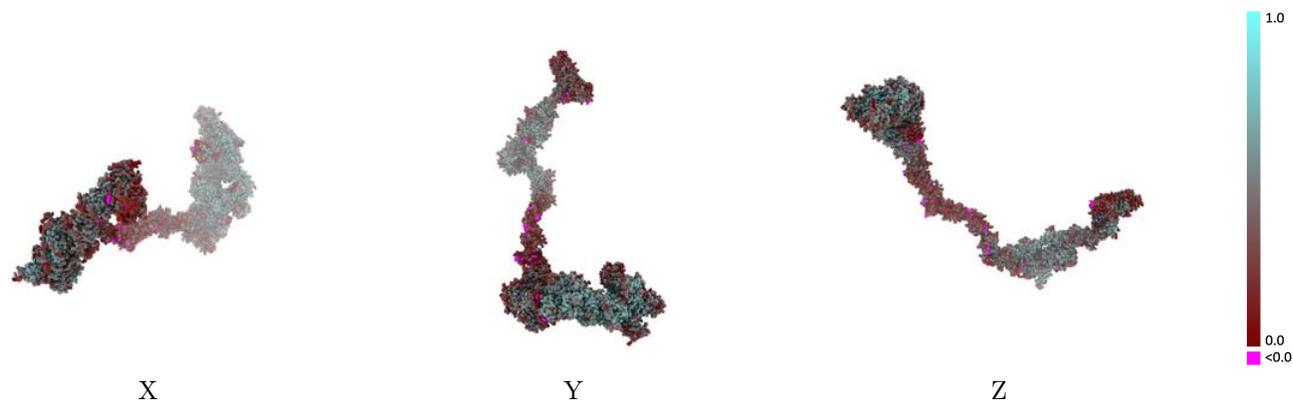
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X   Y   Z
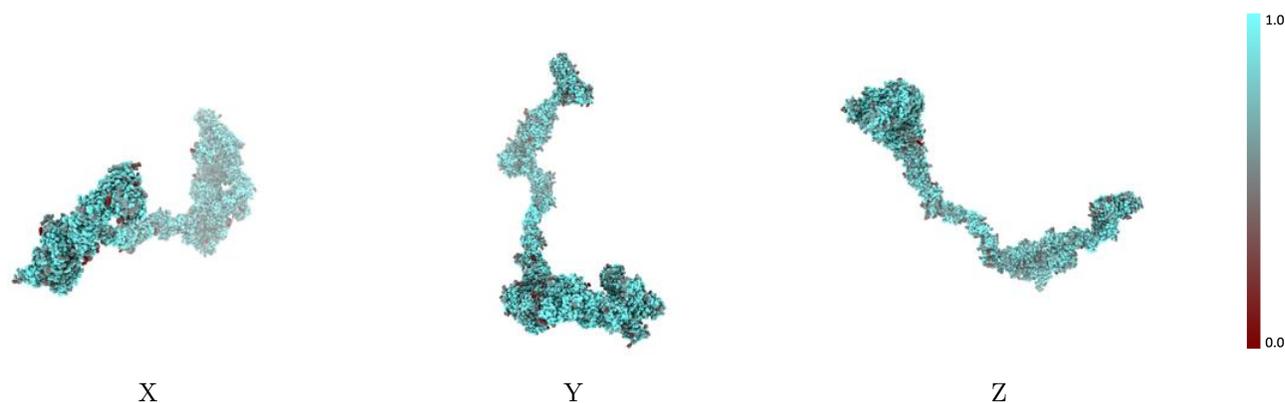
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.8).

9.4　Atom inclusion ⓘ
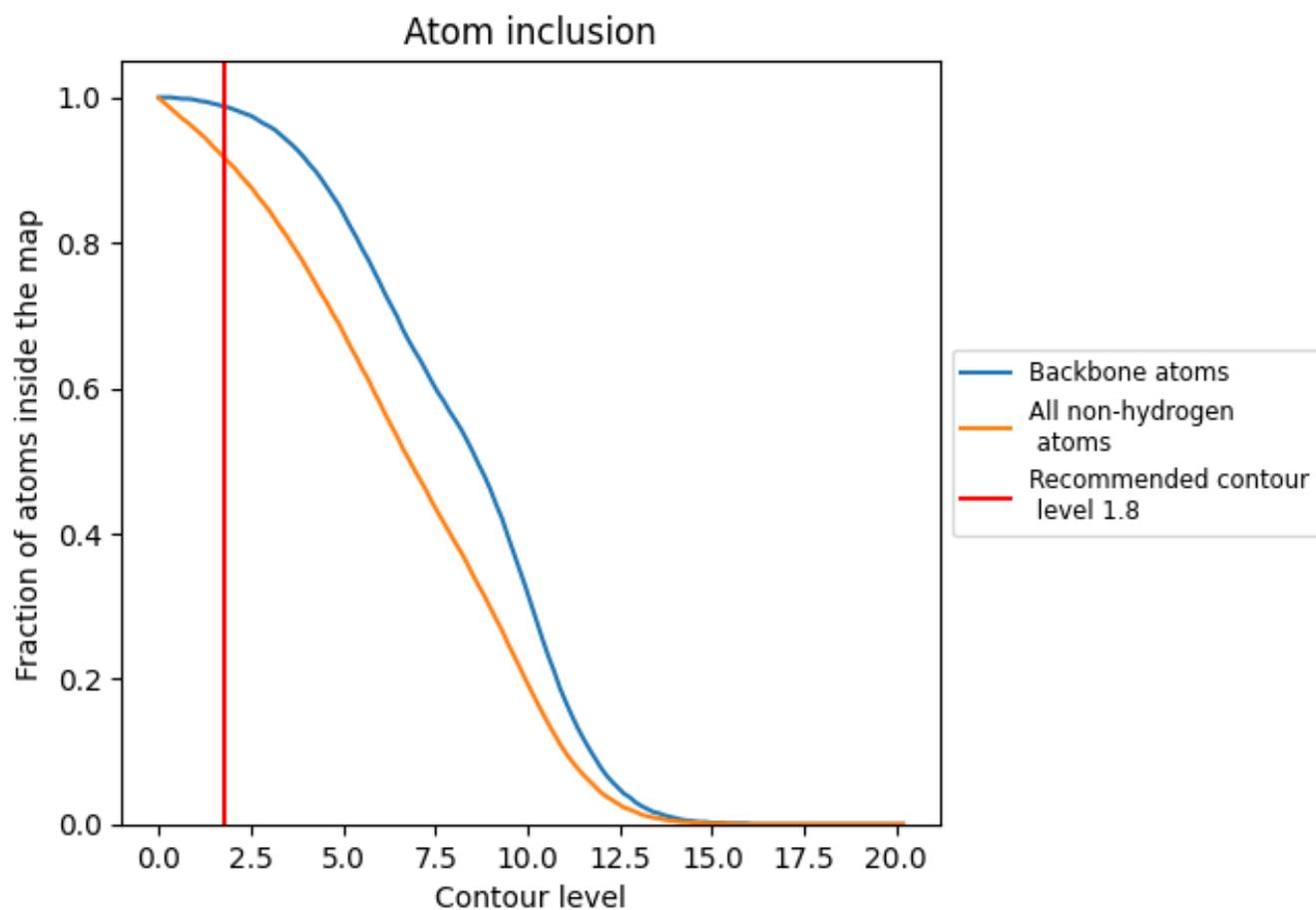
At the recommended contour level, 99% of all backbone atoms, 92% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (1.8) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9160	0.4670
B	0.9230	0.5350
C	0.9580	0.5680
D	0.8970	0.3960
E	0.9390	0.5290
F	0.8590	0.3460
G	0.9370	0.5270
H	0.9700	0.5980

1.0

0.0
<0.0