WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB EM Validation Summary Report (i)

Aug 12, 2025 – 04:29 pm BST

PDB ID	:	8PVY / pdb_00008pvy
EMDB ID	:	EMD-17980
Title	:	Cryo-EM structure of the human BRISC dimer complex bound to compound FX-171-C
Authors	:	Chandler, F.; Zeqiraj, E.
Deposited on	:	2023-07-18
Resolution	:	3.02 Å(reported)

This is a wwPDB EM Validation Summary 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:

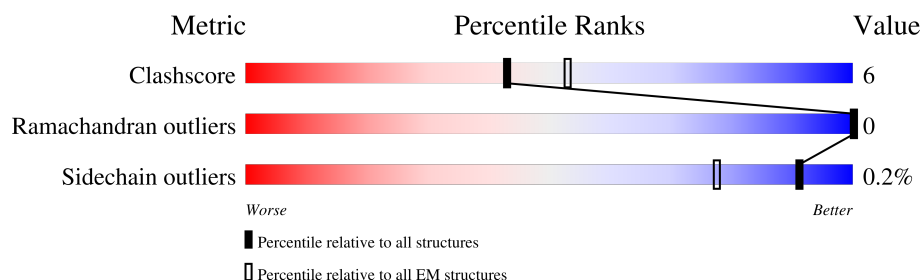|		
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.02 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		6
Ramachandran outliers		0
Sidechain outliers		0.2%

Worse *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=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	312	70% 11% 19%
1	C	312	67% 13% 19%
1	G	312	65% 16% 19%
1	I	312	68% 13% 19%
2	B	267	81% 7% 11%
2	D	267	70% 19% 11%
2	H	267	5% 76% 13% 11%
2	J	267	78% 11% 11%

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Mol	Chain	Length	Quality of chain
3	E	385	45% / 81% — 19%
3	F	385	35% / 88% — 12%
3	K	385	31% / 83% — 17%
3	L	385	67% / 79% — 21%
4	M	259	92% / 90% — 8%
4	N	259	92% / 87% — 5% 8%
4	O	259	92% / 89% — 8%
4	P	259	92% / 91% — 8%

2　Entry composition　ⓘ

There are 6 unique types of molecules in this entry. The entry contains 35736 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 Lys-63-specific deubiquitinase BRCC36.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	252	Total	C	N	O	S	0	0
			2027	1272	363	378	14		
1	C	252	Total	C	N	O	S	0	0
			2026	1272	363	377	14		
1	G	252	Total	C	N	O	S	0	0
			2027	1272	363	378	14		
1	I	252	Total	C	N	O	S	0	0
			2027	1272	363	378	14		

- Molecule 2 is a protein called BRISC complex subunit Abraxas 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	237	Total	C	N	O	S	0	0
			1937	1217	353	360	7		
2	D	237	Total	C	N	O	S	0	0
			1937	1217	353	360	7		
2	H	237	Total	C	N	O	S	0	0
			1937	1217	353	360	7		
2	J	237	Total	C	N	O	S	0	0
			1937	1217	353	360	7		

- Molecule 3 is a protein called BRISC and BRCA1-A complex member 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	383	Total	C	N	O	S	0	0
			3063	1980	503	566	14		
3	F	383	Total	C	N	O	S	0	0
			3065	1981	504	567	13		
3	K	383	Total	C	N	O	S	0	0
			3072	1987	504	567	14		
3	L	383	Total	C	N	O	S	0	0
			3071	1989	503	566	13		

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-1	GLY	-	expression tag	UNP Q9NXR7
E	0	ALA	-	expression tag	UNP Q9NXR7
F	-1	GLY	-	expression tag	UNP Q9NXR7
F	0	ALA	-	expression tag	UNP Q9NXR7
K	-1	GLY	-	expression tag	UNP Q9NXR7
K	0	ALA	-	expression tag	UNP Q9NXR7
L	-1	GLY	-	expression tag	UNP Q9NXR7
L	0	ALA	-	expression tag	UNP Q9NXR7

- Molecule 4 is a protein called BRISC and BRCA1-A complex member 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	M	237	Total 1879	C 1200	N 302	O 359	S 18	0	0
4	N	237	Total 1889	C 1206	N 306	O 359	S 18	0	0
4	O	237	Total 1889	C 1206	N 306	O 359	S 18	0	0
4	P	237	Total 1879	C 1199	N 305	O 357	S 18	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	71	MET	-	initiating methionine	UNP Q9NWV8
N	71	MET	-	initiating methionine	UNP Q9NWV8
O	71	MET	-	initiating methionine	UNP Q9NWV8
P	71	MET	-	initiating methionine	UNP Q9NWV8

- Molecule 5 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total 1	Zn 1	0
5	C	1	Total 1	Zn 1	0
5	G	1	Total 1	Zn 1	0
5	I	1	Total 1	Zn 1	0

- Molecule 6 is N-[(1R,5S)-3-azabicyclo[3.1.0]hexan-6-yl]-1-[2,6-bis(chloranyl)phenyl]carbonyl-4-[[2,6-bis(chloranyl)phenyl]carbonylamino]pyrazole-3-carboxamide (CCD ID: G1V)

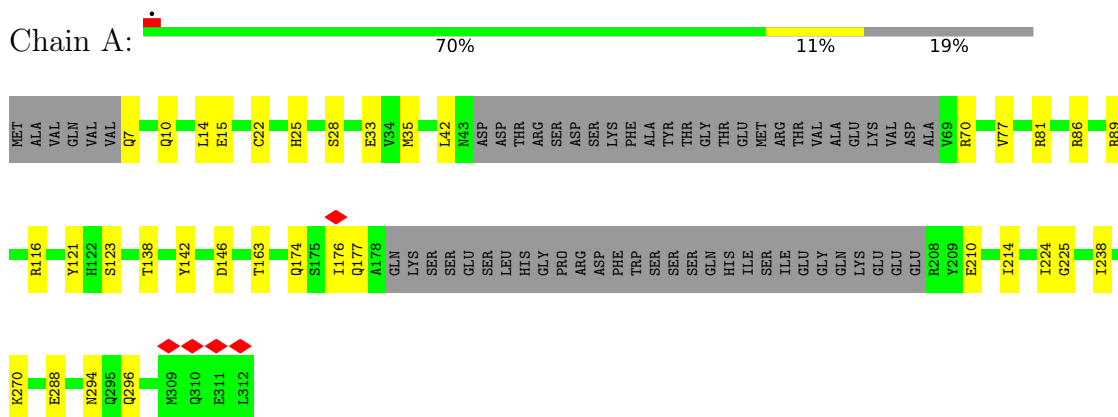(formula: $C_{23}H_{17}Cl_4N_5O_3$) (labeled as "Ligand of Interest" by depositor).
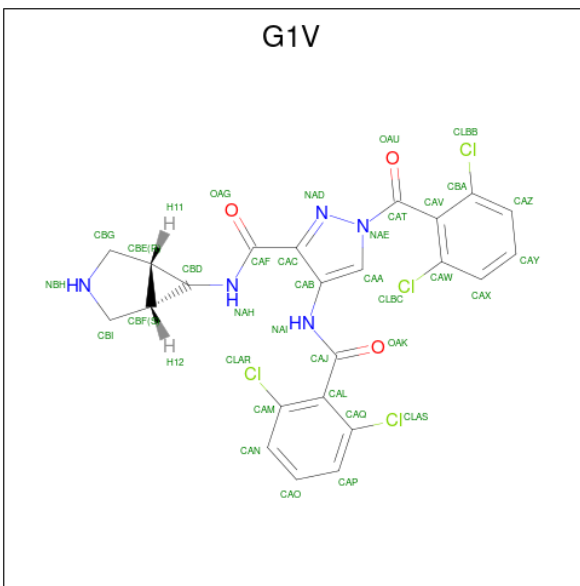
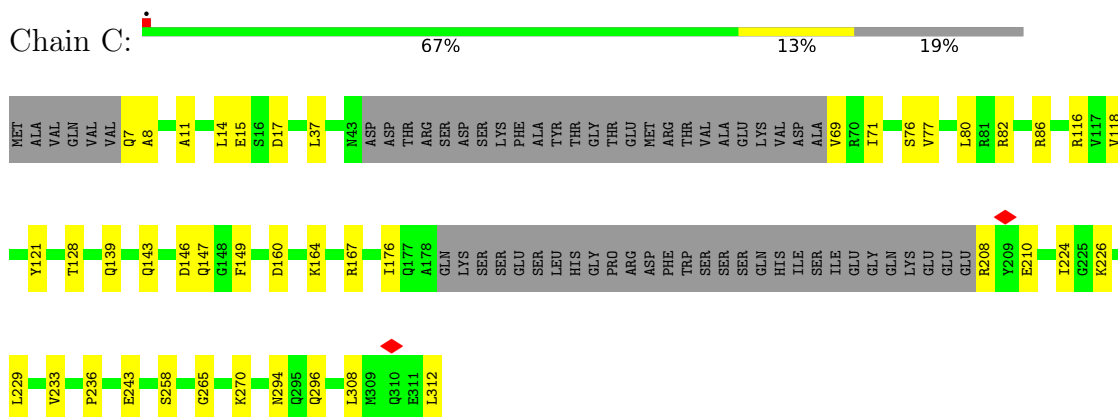| Mol	Chain	Residues	Atoms					AltConf
6	D	1	Total	C	Cl	N	O	0
			35	23	4	5	3	
6	I	1	Total	C	Cl	N	O	0
			35	23	4	5	3	

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: Lys-63-specific deubiquitinase BRCC36

Chain A:
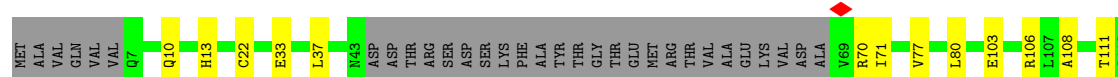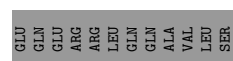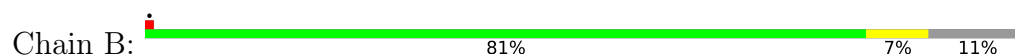

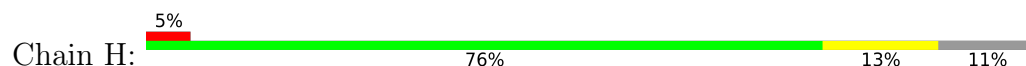• Molecule 1: Lys-63-specific deubiquitinase BRCC36

Chain C:

• Molecule 1: Lys-63-specific deubiquitinase BRCC36

Chain G:

T102 E103 A104 E105 R106 R116 P131 D135 T138 Q139 Y142 Q143 D146 Q147 G148 F149 E159 D160 K161 R167 F173 Q174 Q177 A178 GLN LYS SER GLU SER LEU HIS GLY PRO ARG ASP PHE TRP SER SER GLN HIS ILE ILE SER ILE GLU GLY GLN LYS

GLU GLU GLU R208 Y209 E210 I214 E230 E234 L235 P236 E242 E243 K270 A278 L284 K305 Q310 E311 L312

• Molecule 1: Lys-63-specific deubiquitinase BRCC36

Chain I:

68%　　　　13%　　　　19%

MET ALA VAL GLN VAL VAL Q7 Q10 H13 C22 E33 L37 N43 ASP ASP THR ARG SER ASP SER LYS PHE ALA TYR THR GLY THR GLU MET ARG THR VAL ALA GLU LYS VAL ASP ALA GLN V69 R70 I71 V77 L80 E103 R106 L107 A108 T111 G112

R113 P114 M115 S123 T128 V129 H133 V136 Q139 F149 T171 A178 GLN LYS SER GLU SER LEU HIS GLY PRO ARG ASP PHE TRP SER SER GLN HIS ILE SER ILE GLU GLY GLN LYS GLU GLU R208 Y209 E210 R211 V222 T223 I224 L256 D257

S258 K261 K270 M276 L298 L301 Q302 Q303 E304 K305 E306 E307 L308 M309 Q310 E311 L312

• Molecule 2: BRISC complex subunit Abraxas 2

Chain B:

81%　　　　7%　　　11%

M1 D23 E35 GLU THR PHE SER ILE SER ASP SER GLN ILE SER ASN THR GLU PHE L51 Q52 K85 D86 R87 R96 F97 R98 R108 E109 F127 S134 T135 R157 Q171 E172 D200 G201 V202 K219 E231 R232 T249 Q250 R251 K252 ASN GLU LYS

GLU GLN GLU ARG ARG LEU GLN GLN ALA VAL LEU SER

• Molecule 2: BRISC complex subunit Abraxas 2

Chain D:

70%　　　　19%　　　11%

M1 D23 H24 E25 V32 E35 GLU THR PHE SER ILE SER ASP SER GLN ILE SER ASN THR GLU PHE L51 Q52 V53 I54 F66 S73 E77 K85 D86 R87 I92 R96 F97 R98 R108 E109 H113 K114 Q115 I119 P123 S131 F132 I133

R149 P150 N151 R157 S169 Q170 Q171 E172 Y173 S176 S182 Q183 S184 I189 D198 K199 V202 M203 I206 V223 V227 E228 E231 E235 S236 C237 Q238 V241 L244 Q247 I248 T249 Q250 R251 K252 ASN GLU LYS GLU GLN GLU ARG ARG LEU GLN
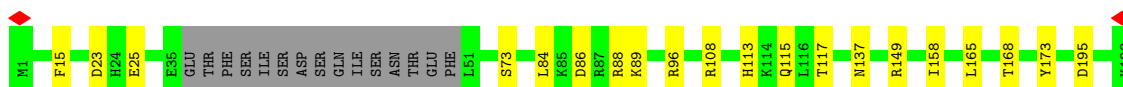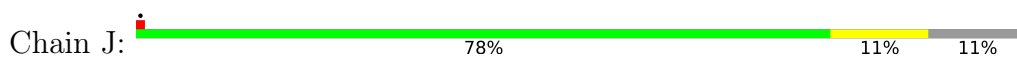
GLN ALA VAL LEU SER

• Molecule 2: BRISC complex subunit Abraxas 2

Chain H:

5%

76%　　　　13%　　　11%

- Molecule 2: BRISC complex subunit Abraxas 2
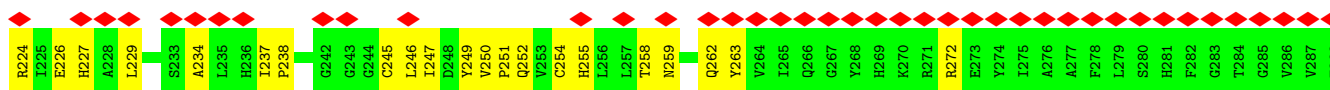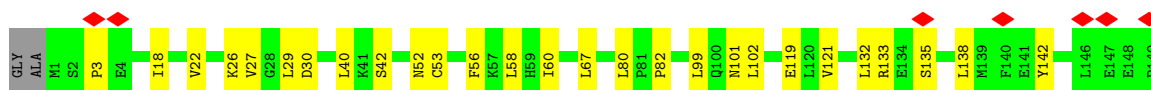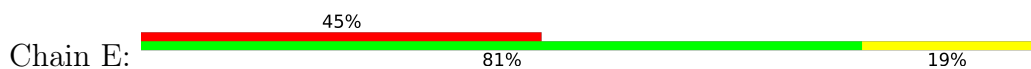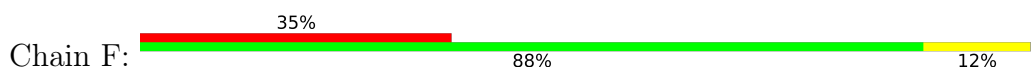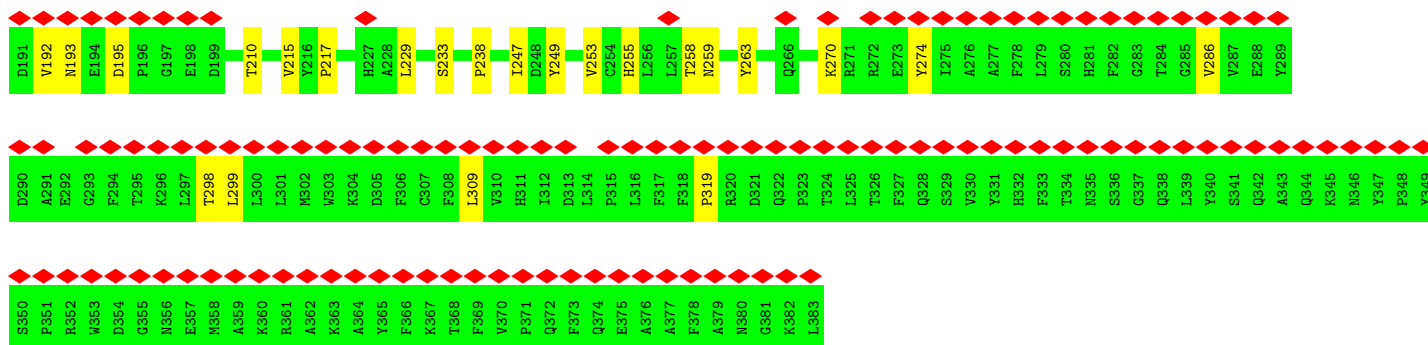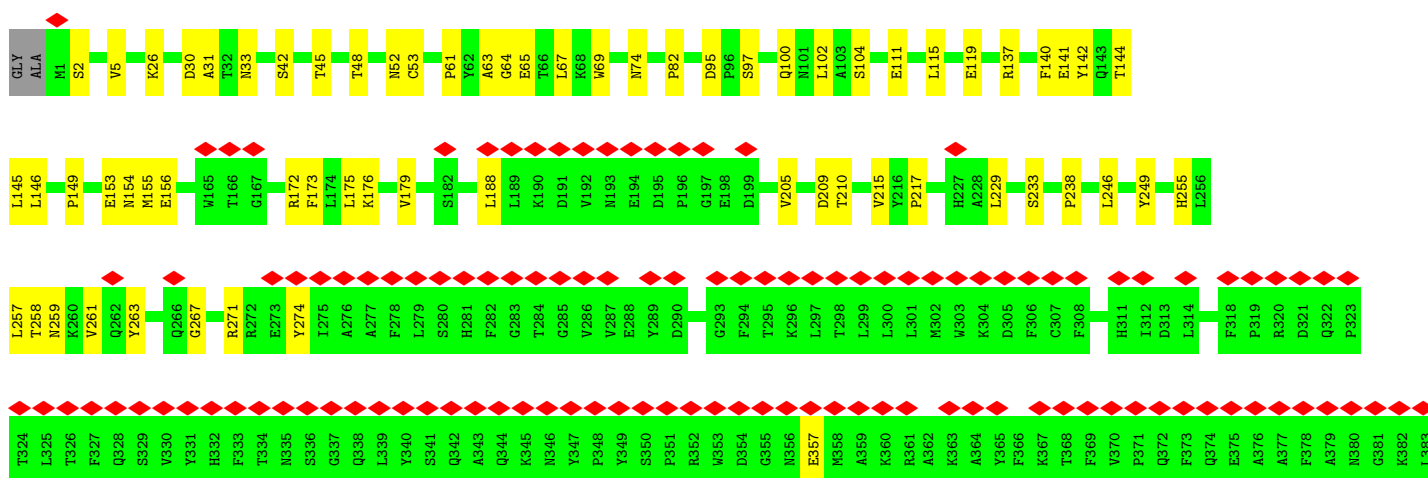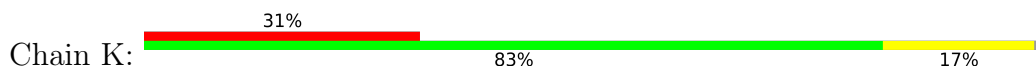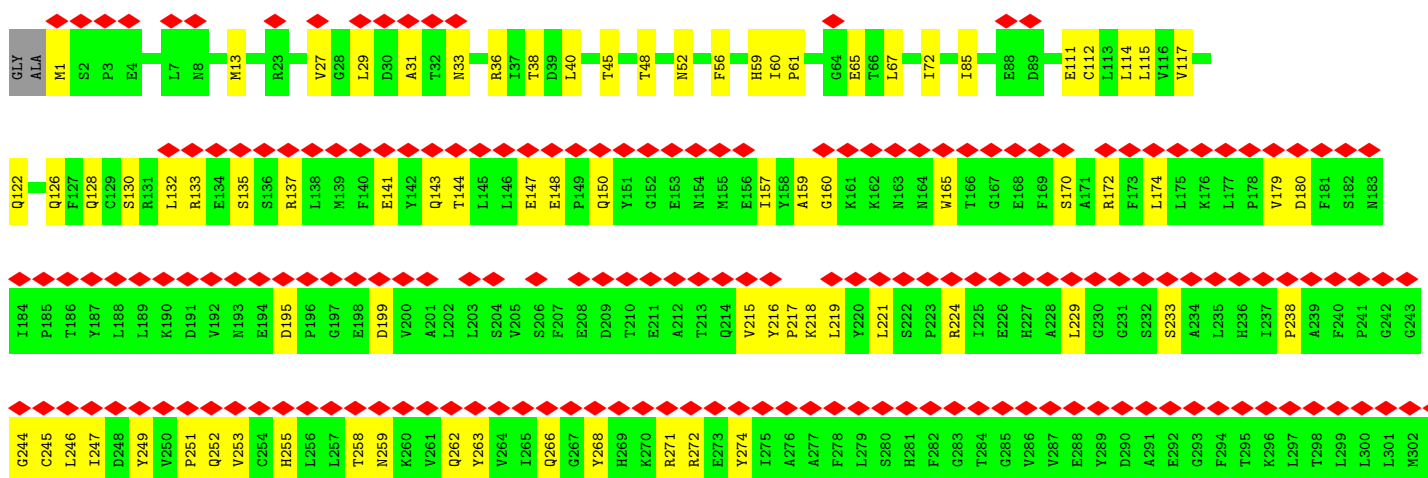
Chain J:

- Molecule 3: BRISC and BRCA1-A complex member 2

Chain E:

- Molecule 3: BRISC and BRCA1-A complex member 2

Chain F:

D191 V192 N193 E194 D195 P196 G197 E198 D199 T210 V215 Y216 P217 H227 A228 L229 S233 P238 I247 D248 Y249 V253 C254 H255 L256 L257 T258 N259 Y263 Q266 K270 R271 R272 E273 Y274 I275 A276 A277 F278 L279 S280 H281 F282 G283 T284 G285 V286 V287 E288 Y289

D290 A291 E292 G293 F294 T295 K296 L297 T298 L299 L300 L301 M302 W303 K304 D305 F306 C307 F308 L309 V310 H311 I312 D313 D321 Q322 P323 T324 L325 T326 F327 Q328 S329 V330 Y331 H332 F333 T334 N335 S336 G337 Q338 L339 Y340 S341 Q342 A343 Q344 K345 N346 Y347 P348 Y349

S350 P351 R352 W353 D354 G355 N356 E357 M358 A359 K360 R361 A362 K363 A364 Y365 F366 K367 T368 F369 V370 P371 Q372 F373 Q374 E375 A376 A377 F378 A379 N380 G381 K382 L383
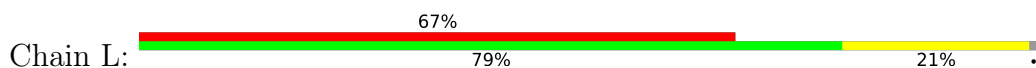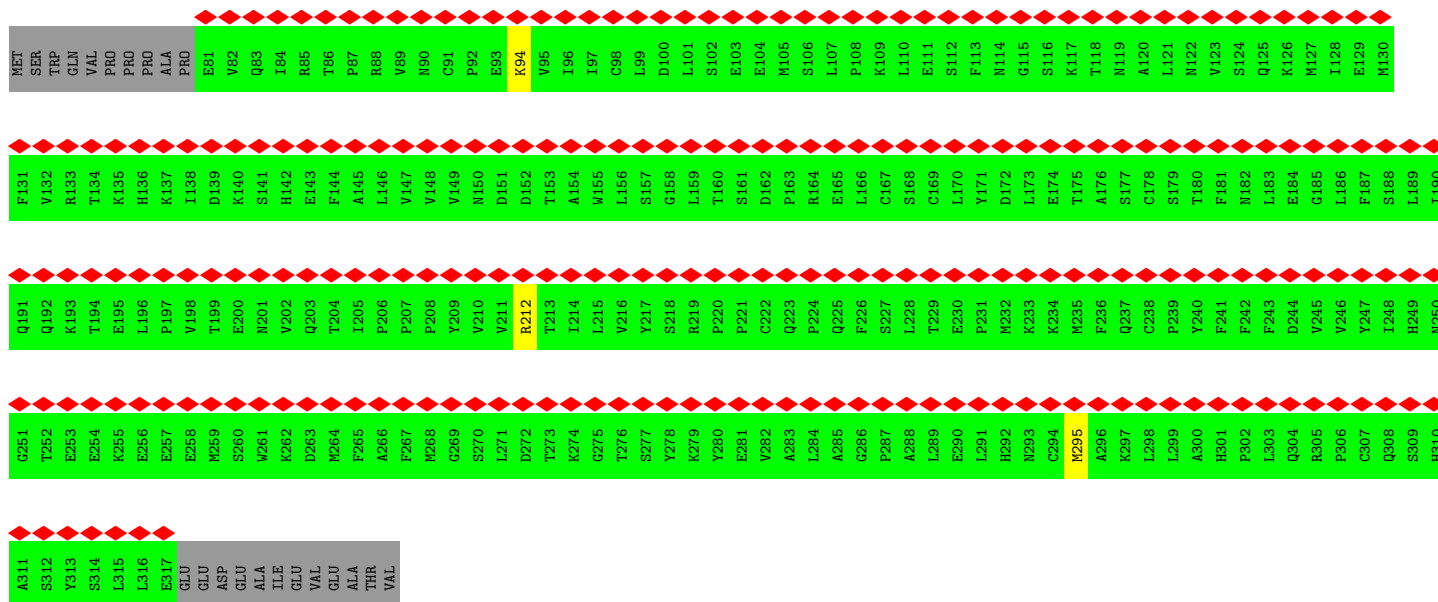
• Molecule 3: BRISC and BRCA1-A complex member 2

Chain K: 31%

83% 17%

GLY ALA M1 S2 V5 K26 D30 A31 T32 N33 S42 T45 T48 N52 C53 P61 Y62 A63 G64 E65 T66 L67 K68 W69 N74 P82 D95 P96 S97 Q100 N101 L102 A103 S104 E111 L115 E119 R137 F140 E141 Y142 Q143 T144

L145 L146 P149 E153 N154 M155 E156 W165 T166 G167 R172 F173 L174 L175 K176 V179 S182 L188 L189 K190 D191 V192 N193 E194 D195 P196 G197 E198 D199 V205 D209 T210 V215 Y216 P217 H227 A228 L229 S233 P238 L246 Y249 H255 L256

L257 T258 N259 K260 V261 Q262 Y263 Q266 G267 R271 R272 E273 Y274 I275 A276 A277 F278 L279 S280 H281 F282 G283 T284 G285 V286 V287 E288 Y289 D290 G293 F294 T295 K296 L297 T298 L299 L300 L301 M302 W303 K304 D305 F306 C307 F308 H311 I312 D313 L314 F318 P319 R320 D321 Q322 P323

T324 L325 T326 F327 Q328 S329 V330 Y331 H332 F333 T334 N335 S336 G337 Q338 L339 Y340 S341 Q342 A343 Q344 K345 N346 Y347 P348 Y349 S350 P351 R352 W353 D354 G355 N356 E357 M358 A359 K360 R361 A362 K363 A364 Y365 F366 K367 T368 F369 V370 P371 Q372 F373 Q374 E375 A376 A377 F378 A379 N380 G381 K382 L383

• Molecule 3: BRISC and BRCA1-A complex member 2

Chain L: 67%

79% 21%

GLY ALA M1 S2 P3 E4 L7 N8 M13 R23 V27 G28 L29 D30 A31 T32 N33 R36 I37 T38 D39 L40 T45 T48 N52 F56 H59 I60 P61 G64 E65 T66 L67 I72 I85 E88 D89 E111 C112 L113 L114 L115 V116 V117

Q122 Q126 F127 Q128 C129 S130 R131 L132 R133 E134 S135 S136 R137 L138 M139 F140 E141 Y142 Q143 T144 L145 L146 E147 E148 P149 Q150 Y151 G152 E153 N154 M155 E156 I157 Y158 A159 G160 K161 K162 N163 N164 W165 T166 G167 E168 F169 S170 A171 R172 F173 L174 L175 K176 L177 P178 V179 D180 F181 S182 N183

I184 P185 T186 Y187 L188 L189 K190 D191 V192 N193 E194 D195 P196 G197 E198 D199 V200 A201 L202 L203 S204 V205 S206 F207 E208 D209 T210 E211 A212 T213 Q214 V215 Y216 P217 K218 L219 Y220 L221 S222 P223 R224 I225 E226 H227 A228 L229 G230 G231 S232 S233 A234 L235 H236 I237 P238 A239 F240 P241 G242 G243

G244 C245 L246 I247 D248 Y249 V250 P251 Q252 V253 C254 H255 L256 L257 T258 N259 K260 V261 Q262 Y263 V264 I265 Q266 G267 Y268 H269 K270 R271 R272 E273 Y274 I275 A276 A277 F278 L279 S280 H281 F282 G283 T284 G285 V286 V287 E288 Y289 D290 A291 E292 G293 F294 T295 K296 L297 T298 L299 L300 L301 M302 W303

K304 D305 F306 C307 F308 L309 V310 H311 I312 D313 L314 P315 L316 F317 F318 P319 R320 D321 Q322 P323 T324 L325 T326 F327 Q328 S329 V330 Y331 H332 F333 T334 N335 S336 G337 Q338 L339 Y340 S341 Q342 A343 Q344 K345 N346 Y347 P348 Y349 S350 P351 R352 W353 D354 G355 N356 E357 M358 A359 K360 R361 A362 K363

A364 Y365 F366 K367 T368 F369 V370 P371 Q372 F373 Q374 E375 A376 A377 F378 A379 N380 G381 K382 L383

• Molecule 4: BRISC and BRCA1-A complex member 1

Chain M:

92%

90%   •   8%

MET SER TRP GLN VAL PRO PRO PRO ALA PRO E81 V82 Q83 I84 R85 T86 P87 R88 V89 N90 C91 P92 E93 K94 V95 I96 I97 C98 L99 D100 L101 S102 E103 E104 M105 S106 L107 P108 K109 L110 E111 S112 F113 N114 G115 S116 K117 T118 N119 A120 L121 N122 V123 S124 Q125 K126 M127 I128 E129 M130

F131 V132 R133 T134 K135 H136 K137 I138 D139 K140 S141 H142 E143 F144 A145 L146 V147 V148 V149 N150 D151 D152 T153 A154 W155 L156 S157 G158 L159 T160 S161 D162 P163 R164 E165 L166 C167 S168 C169 L170 Y171 D172 L173 E174 T175 A176 S177 C178 S179 T180 F181 N182 L183 E184 G185 L186 F187 S188 L189 I190

Q191 Q192 K193 T194 E195 L196 P197 V198 T199 E200 N201 V202 Q203 T204 I205 P206 P207 P208 Y209 V210 V211 R212 T213 I214 L215 V216 Y217 S218 R219 P220 P221 C222 Q223 P224 Q225 F226 S227 L228 T229 E230 P231 M232 K233 K234 M235 F236 Q237 C238 P239 Y240 F241 F242 F243 D244 V245 V246 Y247 I248 H249 N250

G251 T252 E253 E254 K255 E256 E257 E258 M259 S260 W261 K262 D263 M264 F265 A266 F267 M268 G269 S270 L271 D272 T273 K274 G275 T276 S277 Y278 K279 Y280 E281 V282 A283 L284 A285 G286 P287 A288 L289 E290 L291 H292 N293 C294 M295 A296 K297 L298 L299 A300 H301 P302 L303 Q304 R305 P306 C307 Q308 S309 H310

A311 S312 Y313 S314 L315 L316 E317 GLU GLU ASP GLU ALA ILE GLU VAL GLU ALA THR VAL

• Molecule 4: BRISC and BRCA1-A complex member 1

Chain N:

92%

87%   5%   8%

MET SER TRP GLN VAL PRO PRO PRO ALA PRO E81 V82 Q83 I84 R85 T86 P87 R88 V89 N90 C91 P92 E93 K94 V95 I96 I97 C98 L99 D100 L101 S102 E103 E104 M105 S106 L107 P108 K109 L110 E111 S112 F113 N114 G115 S116 K117 T118 N119 A120 L121 N122 V123 S124 Q125 K126 M127 I128 E129 M130

F131 V132 R133 T134 K135 H136 K137 I138 D139 K140 S141 H142 E143 F144 A145 L146 V147 V148 V149 N150 D151 D152 T153 A154 W155 L156 S157 G158 L159 T160 S161 D162 P163 R164 E165 L166 C167 S168 C169 L170 Y171 D172 L173 E174 T175 A176 S177 C178 S179 T180 F181 N182 L183 E184 G185 L186 F187 S188 L189 I190

Q191 Q192 K193 T194 E195 L196 P197 V198 T199 E200 N201 V202 Q203 T204 I205 P206 P207 P208 Y209 V210 V211 R212 T213 I214 L215 V216 Y217 S218 R219 P220 P221 C222 Q223 P224 Q225 F226 S227 L228 T229 E230 P231 M232 K233 K234 M235 F236 Q237 C238 P239 Y240 F241 F242 F243 D244 V245 V246 Y247 I248 H249 N250

G251 T252 E253 E254 K255 E256 E257 E258 M259 S260 W261 K262 D263 M264 F265 A266 F267 M268 G269 S270 L271 D272 T273 K274 G275 T276 S277 Y278 K279 Y280 E281 V282 A283 L284 A285 G286 P287 A288 L289 E290 L291 H292 N293 C294 M295 A296 K297 L298 L299 A300 H301 P302 L303 Q304 R305 P306 C307 Q308 S309 H310

A311 S312 Y313 S314 L315 L316 E317 GLU GLU ASP GLU ALA ILE GLU VAL GLU ALA THR VAL

• Molecule 4: BRISC and BRCA1-A complex member 1

92%

Chain O:

89%　　　　　　　　　　• 8%

MET SER TRP GLN VAL PRO PRO PRO ALA PRO E81 V82 Q83 I84 R85 T86 P87 R88 V89 N90 C91 P92 E93 K94 V95 I96 I97 C98 L99 D100 L101 S102 E103 E104 M105 S106 L107 P108 K109 L110 E111 S112 F113 N114 G115 S116 K117 T118 N119 A120 L121 N122 V123 S124 Q125 K126 M127 I128 E129 M130

F131 V132 R133 T134 K135 H136 K137 I138 D139 K140 S141 H142 E143 F144 A145 L146 V147 V148 V149 N150 D151 D152 T153 A154 W155 L156 S157 G158 L159 T160 S161 D162 P163 R164 E165 L166 C167 S168 C169 L170 Y171 D172 L173 E174 T175 A176 S177 C178 S179 T180 F181 N182 L183 E184 G185 L186 F187 S188 L189 I190

Q191 Q192 K193 T194 E195 L196 P197 V198 T199 E200 N201 V202 Q203 T204 I205 P206 P207 P208 Y209 V210 V211 R212 T213 I214 L215 V216 Y217 S218 R219 P220 P221 C222 Q223 Q224 Q225 F226 S227 L228 T229 E230 P231 M232 K233 K234 M235 F236 Q237 C238 P239 Y240 F241 F242 F243 D244 V245 V246 Y247 I248 H249 N250

G251 T252 E253 E254 K255 E256 E257 E258 M259 S260 W261 K262 D263 M264 F265 A266 F267 M268 G269 S270 L271 D272 T273 K274 G275 T276 S277 Y278 K279 Y280 E281 V282 A283 L284 A285 G286 P287 A288 L289 E290 L291 H292 N293 C294 M295 A296 K297 L298 L299 A300 H301 P302 L303 Q304 R305 P306 C307 Q308 S309 H310

A311 S312 Y313 S314 L315 L316 E317 GLU GLU ASP GLU ALA ILE GLU VAL GLU ALA THR VAL

• Molecule 4: BRISC and BRCA1-A complex member 1

92%

Chain P:

91%　　　　　　　　　　8%

MET SER TRP GLN VAL PRO PRO PRO ALA PRO E81 V82 Q83 I84 R85 T86 P87 R88 V89 N90 C91 P92 E93 K94 V95 I96 I97 C98 L99 D100 L101 S102 E103 E104 M105 S106 L107 P108 K109 L110 E111 S112 F113 N114 G115 S116 K117 T118 N119 A120 L121 N122 V123 S124 Q125 K126 M127 I128 E129 M130

F131 V132 R133 T134 K135 H136 K137 I138 D139 K140 S141 H142 E143 F144 A145 L146 V147 V148 V149 N150 D151 D152 T153 A154 W155 L156 S157 G158 L159 T160 S161 D162 P163 R164 E165 L166 C167 S168 C169 L170 Y171 D172 L173 E174 T175 A176 S177 C178 S179 T180 F181 N182 L183 E184 G185 L186 F187 S188 L189 I190

Q191 Q192 K193 T194 E195 L196 P197 V198 T199 E200 N201 V202 Q203 T204 I205 P206 P207 P208 Y209 V210 V211 R212 T213 I214 L215 V216 Y217 S218 R219 P220 P221 C222 Q223 Q224 Q225 F226 S227 L228 T229 E230 P231 M232 K233 K234 M235 F236 Q237 C238 P239 Y240 F241 F242 F243 D244 V245 V246 Y247 I248 H249 N250

G251 T252 E253 E254 K255 E256 E257 E258 M259 S260 W261 K262 D263 M264 F265 A266 F267 M268 G269 S270 L271 D272 T273 K274 G275 T276 S277 Y278 K279 Y280 E281 V282 A283 L284 A285 G286 P287 A288 L289 E290 L291 H292 N293 C294 M295 A296 K297 L298 L299 A300 H301 P302 L303 Q304 R305 P306 C307 Q308 S309 H310

A311 S312 Y313 S314 L315 L316 E317 GLU GLU ASP GLU ALA ILE GLU VAL GLU ALA THR VAL

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	632988	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	34.97	Depositor
Minimum defocus (nm)	1600	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	165000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.027	Depositor
Minimum map value	-0.008	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.005	Depositor
Map size (Å)	272.60162, 272.60162, 272.60162	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.7099001, 0.7099001, 0.7099001	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: G1V, ZN

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	0.11	0/2063	0.27	0/2788
1	C	0.12	0/2062	0.32	0/2787
1	G	0.12	0/2063	0.30	0/2788
1	I	0.11	0/2063	0.27	0/2788
2	B	0.12	0/1972	0.24	0/2655
2	D	0.15	0/1972	0.32	0/2655
2	H	0.11	0/1972	0.25	0/2655
2	J	0.13	0/1972	0.27	0/2655
3	E	0.13	0/3152	0.33	1/4288 (0.0%)
3	F	0.11	0/3154	0.31	0/4291
3	K	0.11	0/3162	0.31	0/4301
3	L	0.12	0/3162	0.34	0/4302
4	M	0.12	0/1922	0.33	0/2607
4	N	0.20	0/1934	0.51	1/2623 (0.0%)
4	O	0.12	0/1934	0.36	1/2623 (0.0%)
4	P	0.10	0/1923	0.32	0/2608
All	All	0.12	0/36482	0.32	3/49414 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	N	232	MET	CA-CB-CG	5.68	125.46	114.10
4	O	288	ALA	CB-CA-C	-5.34	110.43	116.63
3	E	223	PRO	CA-N-CD	-5.32	104.56	112.00

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	A	2027	0	2022	25	0
1	C	2026	0	2019	28	0
1	G	2027	0	2022	32	0
1	I	2027	0	2022	28	0
2	B	1937	0	1924	21	0
2	D	1937	0	1924	40	0
2	H	1937	0	1924	27	0
2	J	1937	0	1924	26	0
3	E	3063	0	2983	50	0
3	F	3065	0	2984	31	0
3	K	3072	0	2994	43	0
3	L	3071	0	2988	48	0
4	M	1879	0	1861	2	0
4	N	1889	0	1871	7	0
4	O	1889	0	1871	2	0
4	P	1879	0	1860	0	0
5	A	1	0	0	0	0
5	C	1	0	0	0	0
5	G	1	0	0	0	0
5	I	1	0	0	0	0
6	D	35	0	0	5	0
6	I	35	0	0	7	0
All	All	35736	0	35193	366	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 6.

The worst 5 of 366 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)
6:I:402:G1V:CLAR	6:I:402:G1V:NAI	2.46	0.84
1:C:128:THR:HA	6:D:301:G1V:CLAS	2.20	0.79
6:D:301:G1V:CLAR	6:D:301:G1V:NAI	2.54	0.77
1:A:294:ASN:HD21	2:B:231:GLU:HG2	1.52	0.75
2:J:73:SER:O	2:J:115:GLN:NE2	2.21	0.73

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	A	246/312 (79%)	243 (99%)	3 (1%)	0	100	100
1	C	246/312 (79%)	241 (98%)	5 (2%)	0	100	100
1	G	246/312 (79%)	237 (96%)	9 (4%)	0	100	100
1	I	246/312 (79%)	237 (96%)	9 (4%)	0	100	100
2	B	233/267 (87%)	229 (98%)	4 (2%)	0	100	100
2	D	233/267 (87%)	227 (97%)	6 (3%)	0	100	100
2	H	233/267 (87%)	221 (95%)	12 (5%)	0	100	100
2	J	233/267 (87%)	227 (97%)	6 (3%)	0	100	100
3	E	381/385 (99%)	342 (90%)	39 (10%)	0	100	100
3	F	381/385 (99%)	345 (91%)	36 (9%)	0	100	100
3	K	381/385 (99%)	346 (91%)	35 (9%)	0	100	100
3	L	381/385 (99%)	345 (91%)	36 (9%)	0	100	100
4	M	235/259 (91%)	207 (88%)	28 (12%)	0	100	100
4	N	235/259 (91%)	204 (87%)	31 (13%)	0	100	100
4	O	235/259 (91%)	202 (86%)	33 (14%)	0	100	100
4	P	235/259 (91%)	212 (90%)	23 (10%)	0	100	100
All	All	4380/4892 (90%)	4065 (93%)	315 (7%)	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	A	229/282 (81%)	229 (100%)	0	100	100
1	C	228/282 (81%)	227 (100%)	1 (0%)	89	95
1	G	229/282 (81%)	229 (100%)	0	100	100
1	I	229/282 (81%)	229 (100%)	0	100	100
2	B	214/243 (88%)	214 (100%)	0	100	100
2	D	214/243 (88%)	214 (100%)	0	100	100
2	H	214/243 (88%)	214 (100%)	0	100	100
2	J	214/243 (88%)	214 (100%)	0	100	100
3	E	334/337 (99%)	334 (100%)	0	100	100
3	F	334/337 (99%)	333 (100%)	1 (0%)	91	96
3	K	336/337 (100%)	336 (100%)	0	100	100
3	L	335/337 (99%)	334 (100%)	1 (0%)	91	96
4	M	217/238 (91%)	217 (100%)	0	100	100
4	N	219/238 (92%)	218 (100%)	1 (0%)	86	94
4	O	219/238 (92%)	218 (100%)	1 (0%)	86	94
4	P	217/238 (91%)	216 (100%)	1 (0%)	86	94
All	All	3982/4400 (90%)	3976 (100%)	6 (0%)	91	97

5 of 6 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	N	316	LEU
4	O	259	MET
4	P	284	LEU
3	F	298	THR
1	C	208	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 22 such sidechains are listed below:

Mol	Chain	Res	Type
2	H	192	HIS
3	K	76	GLN
2	J	34	GLN
3	K	143	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	174	GLN

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 ⓘ

Of 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	G1V	D	301	-	37,39,39	4.05	12 (32%)	41,58,58	4.54	16 (39%)
6	G1V	I	402	-	37,39,39	4.04	13 (35%)	41,58,58	4.47	12 (29%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	G1V	D	301	-	-	9/14/39/39	0/5/5/5
6	G1V	I	402	-	-	9/14/39/39	0/5/5/5

The worst 5 of 25 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	301	G1V	CAC-CAF	-11.89	1.32	1.50
6	I	402	G1V	CAC-CAF	-11.65	1.33	1.50
6	I	402	G1V	CBF-CBD	11.52	1.64	1.50
6	I	402	G1V	CBE-CBD	11.25	1.64	1.50
6	D	301	G1V	CBF-CBD	11.11	1.64	1.50

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	D	301	G1V	CBI-NBH-CBG	13.46	137.21	105.42
6	I	402	G1V	CBF-CBE-CBD	13.45	65.73	59.90
6	I	402	G1V	CBI-NBH-CBG	13.18	136.56	105.42
6	D	301	G1V	CBF-CBE-CBD	12.98	65.52	59.90
6	I	402	G1V	CBE-CBF-CBD	12.83	65.46	59.90

There are no chirality outliers.

5 of 18 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	D	301	G1V	NAI-CAJ-CAL-CAQ
6	D	301	G1V	OAK-CAJ-CAL-CAM
6	D	301	G1V	OAK-CAJ-CAL-CAQ
6	D	301	G1V	NAE-CAT-CAV-CAW
6	D	301	G1V	NAE-CAT-CAV-CBA

There are no ring outliers.

2 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	D	301	G1V	5	0
6	I	402	G1V	7	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and

any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand G1V D 301

Bond lengths

Bond angles

Torsions

Rings

Ligand G1V I 402
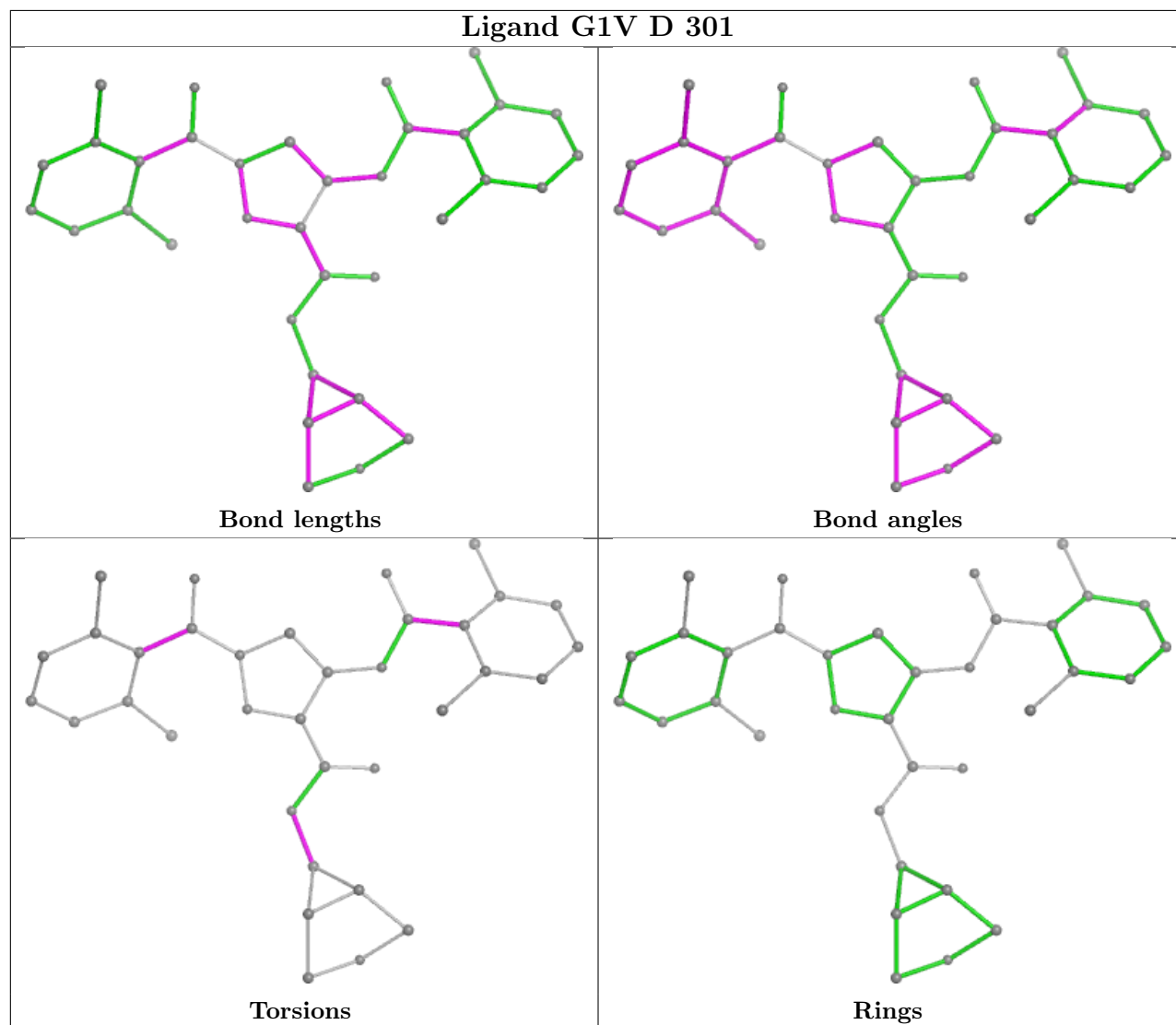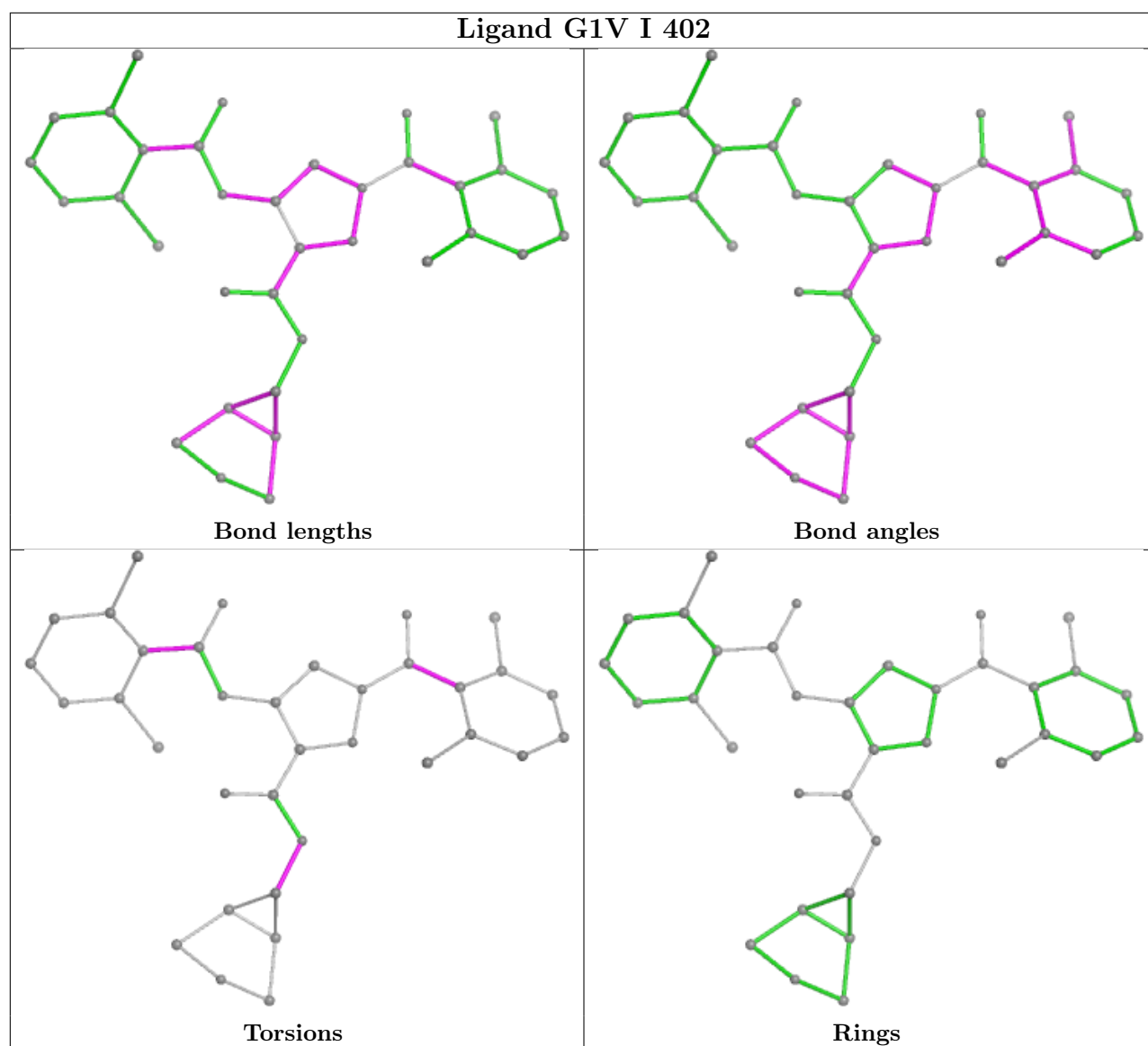
5.7 Other polymers (i)

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 ⓘ

This section contains visualisations of the EMDB entry EMD-17980. 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 ⓘ
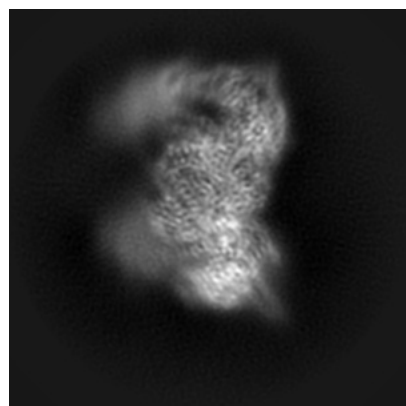
6.1.1 Primary map

X
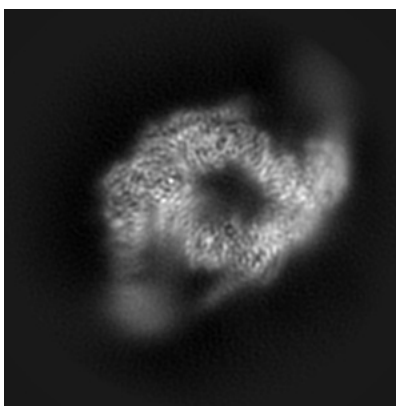
Y
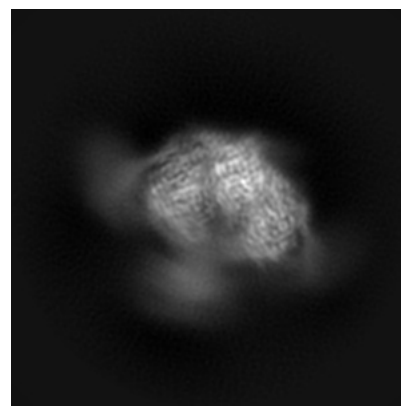
Z

6.1.2 Raw map

X

Y

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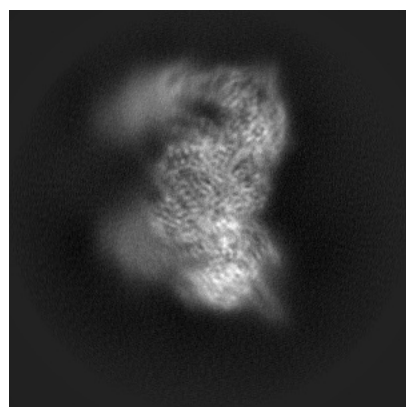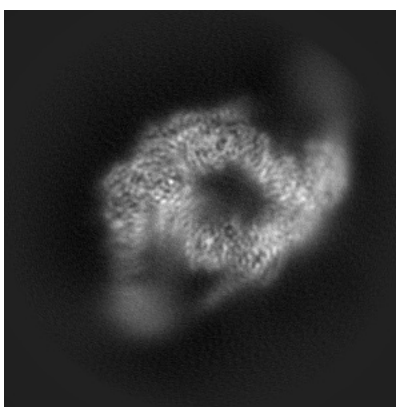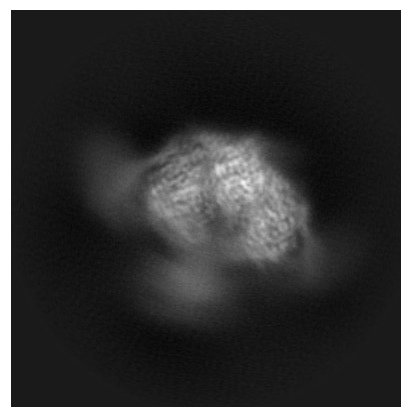
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ
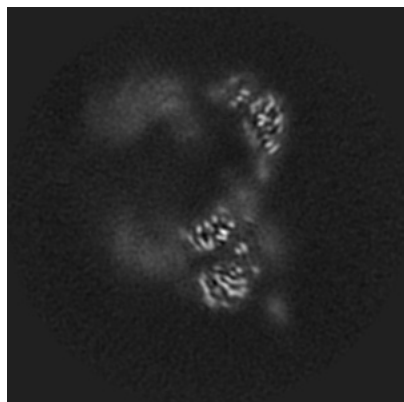
6.2.1   Primary map
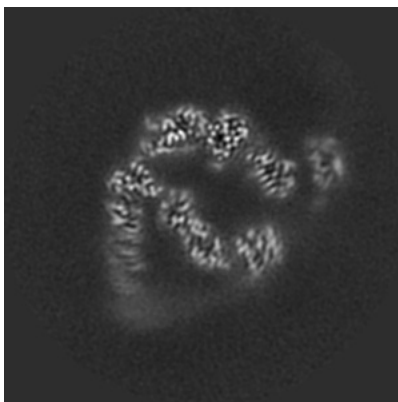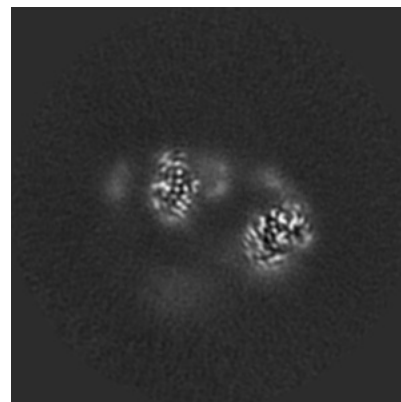
| X Index: 192 | Y Index: 192 | Z Index: 192 |

6.2.2   Raw map
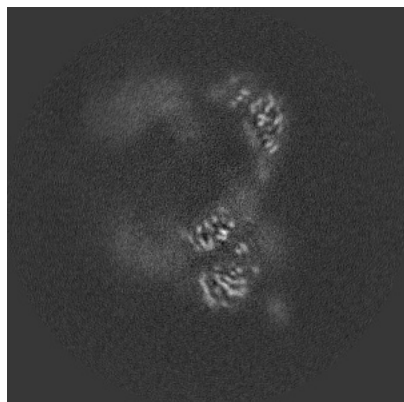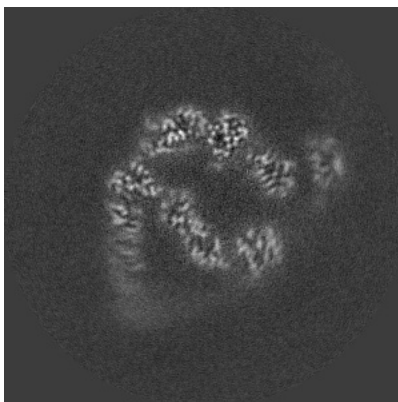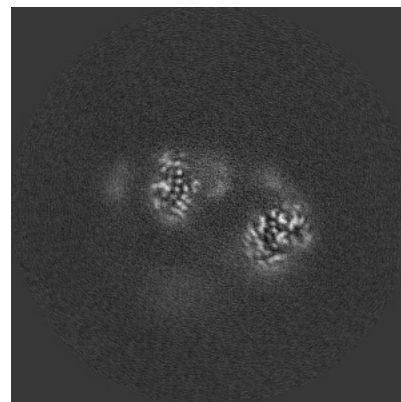
| X Index: 192 | Y Index: 192 | Z Index: 192 |

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

6.3 Largest variance slices (i)

6.3.1 Primary map
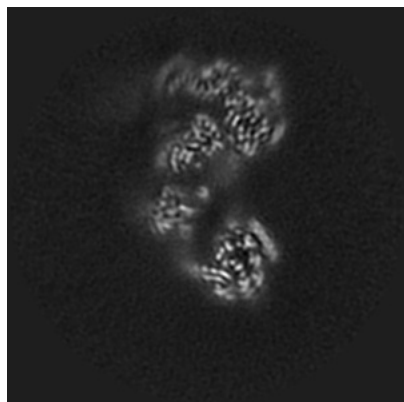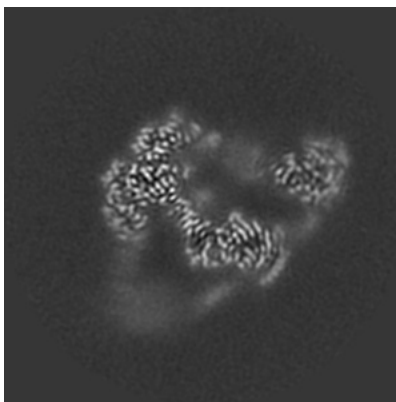
X Index: 231   Y Index: 212   Z Index: 177
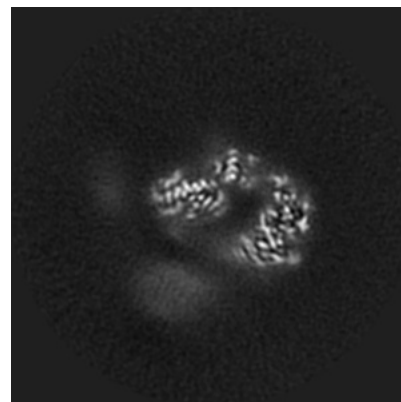
6.3.2 Raw map
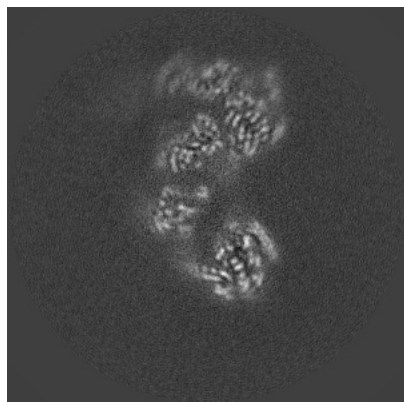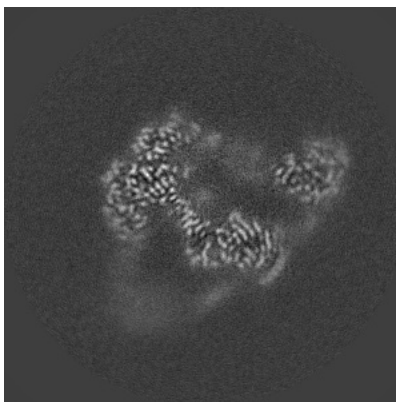
X Index: 232   Y Index: 212   Z Index: 177
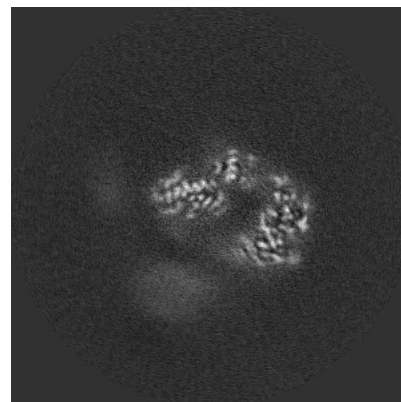
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map
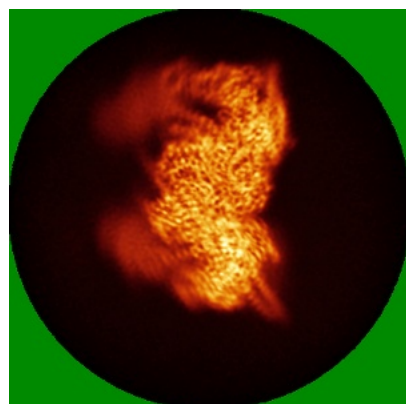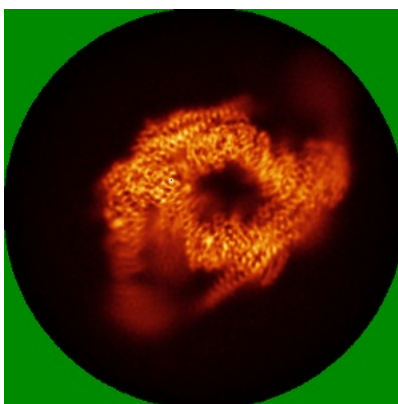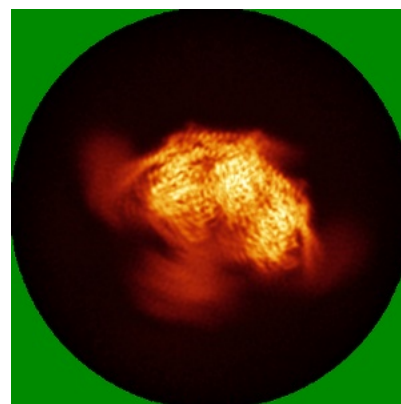
X Y Z

6.4.2 Raw map

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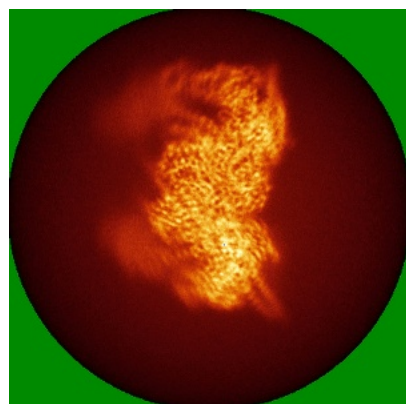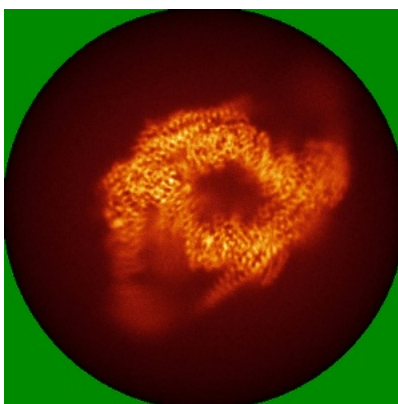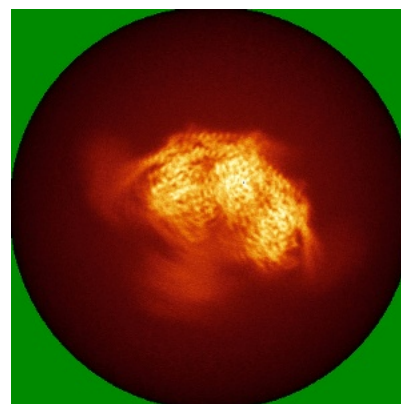
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

| X | Y | Z |
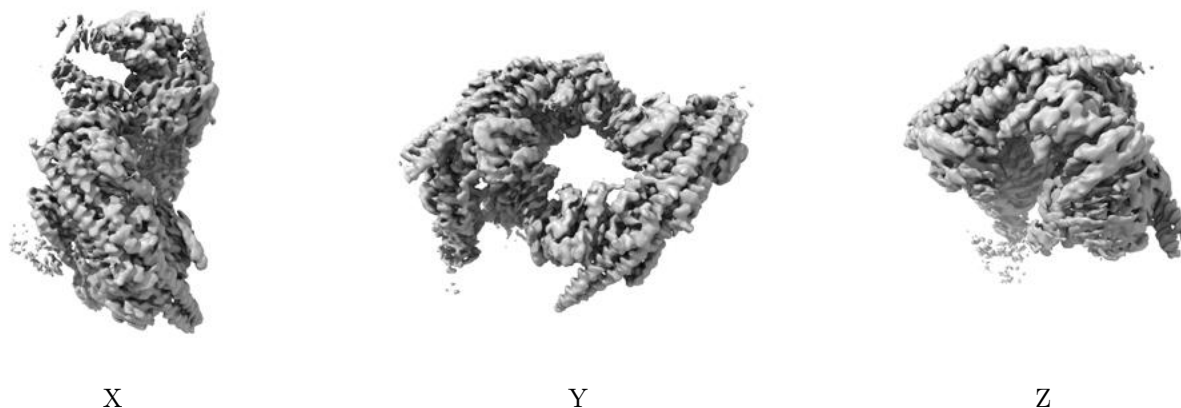
The images above show the 3D surface view of the map at the recommended contour level 0.005. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

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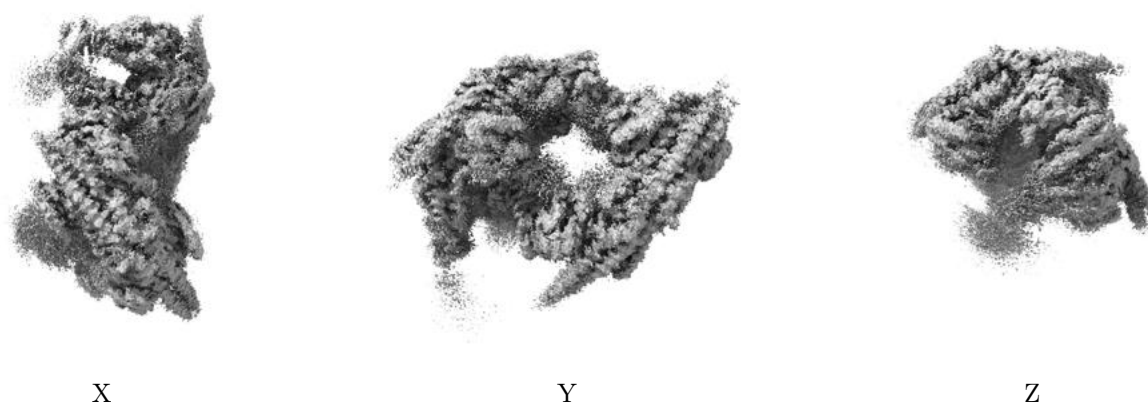
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

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_17980_msk_1.map ⓘ

X   Y   Z
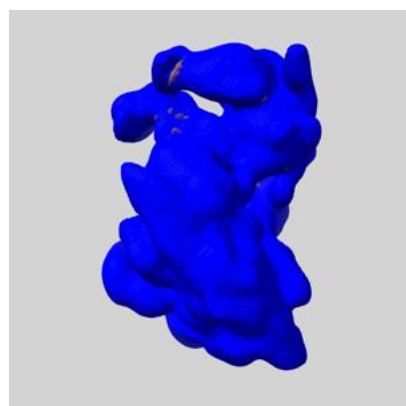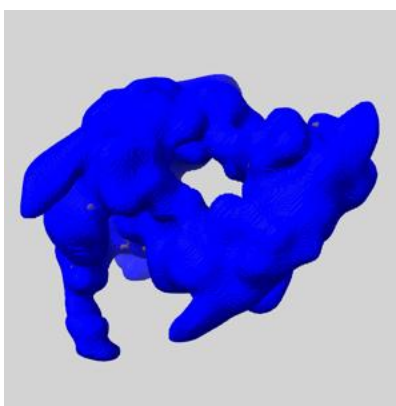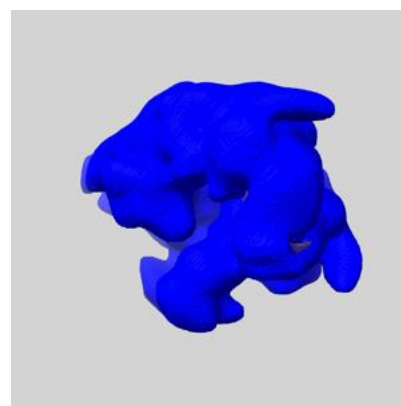
7   Map analysis ⓘ

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 ⓘ
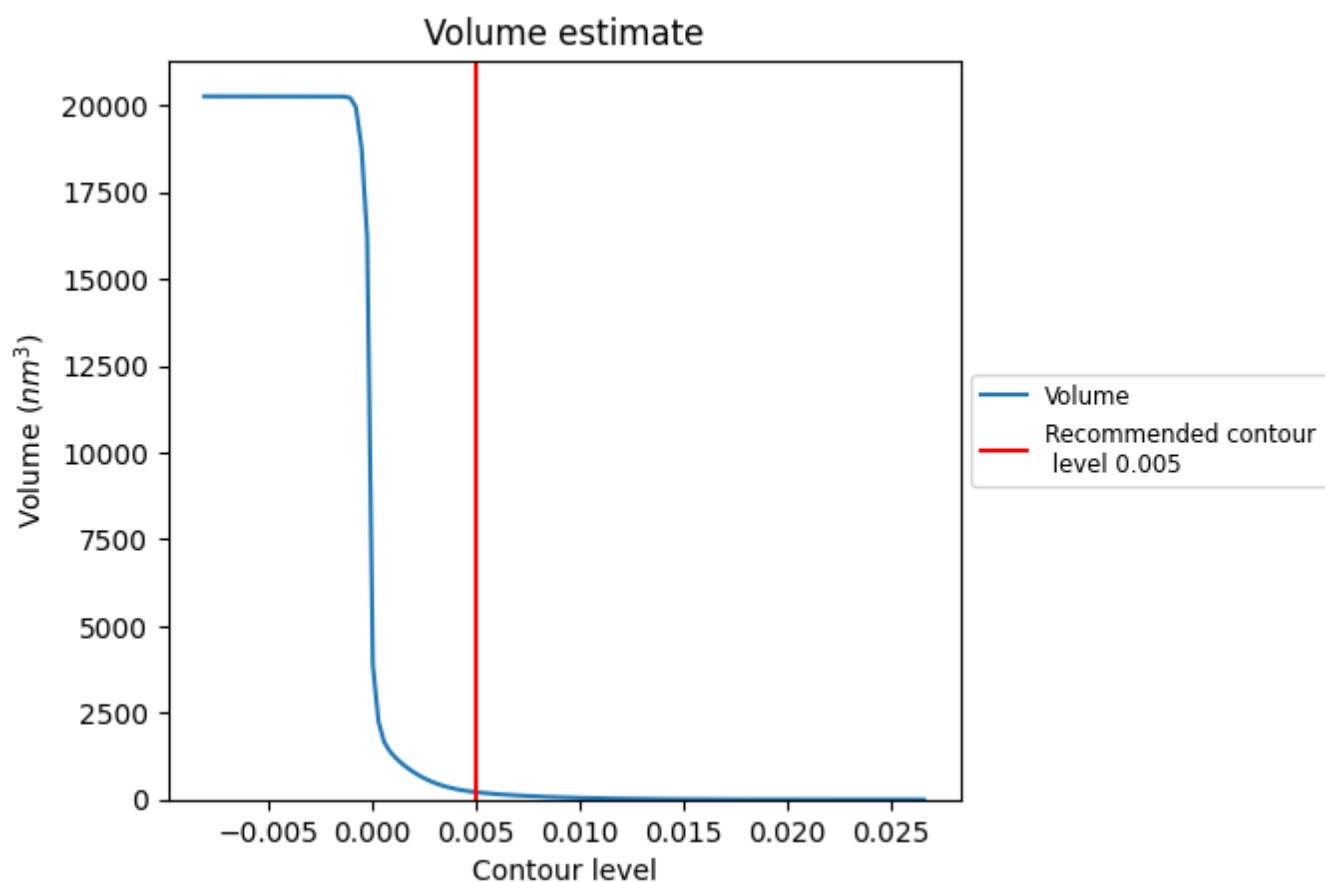
The volume at the recommended contour level is 213 nm^3; this corresponds to an approximate mass of 193 kDa.

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)
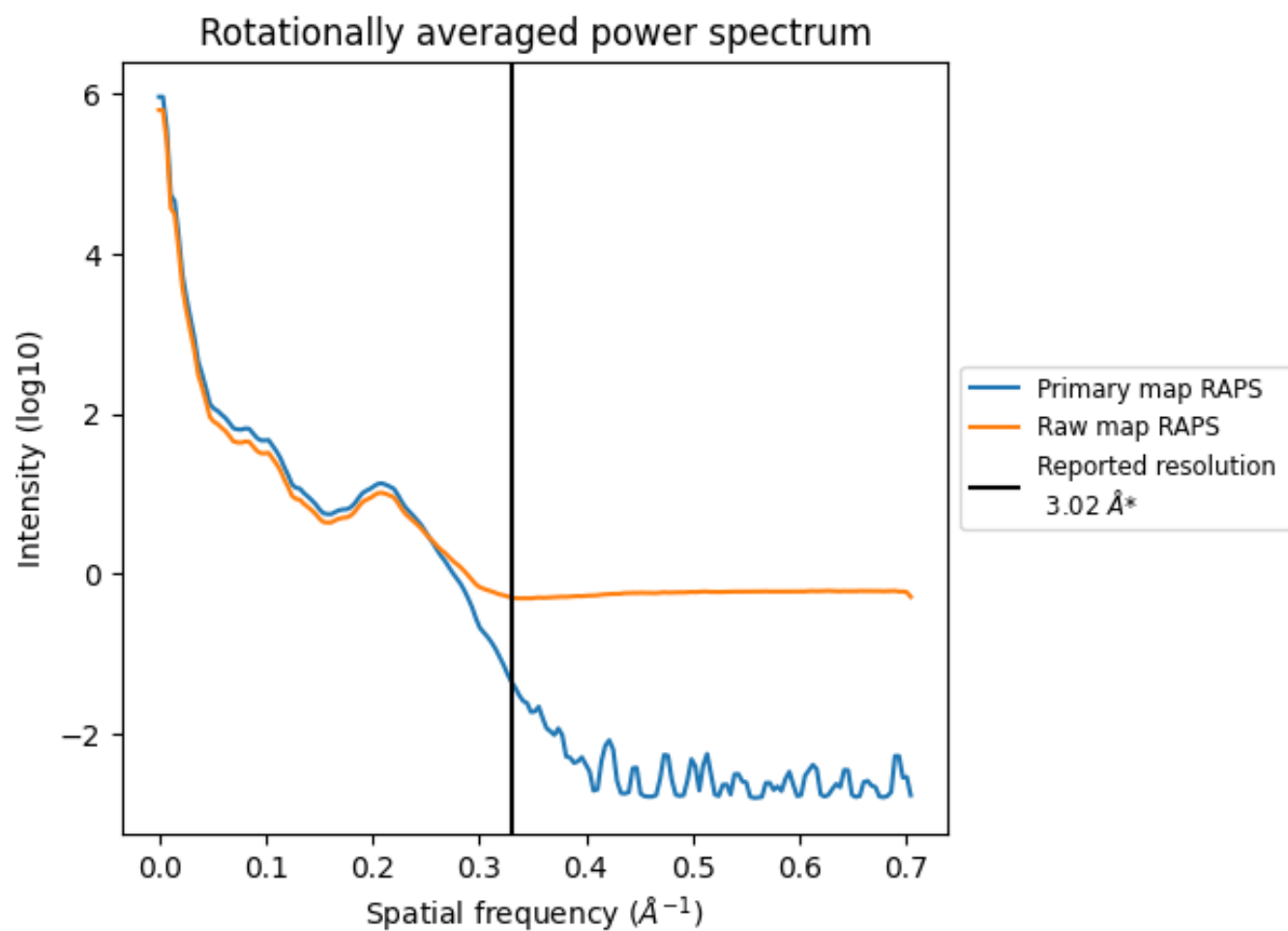
*Reported resolution corresponds to spatial frequency of 0.331 Å^{-1}

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 ⓘ
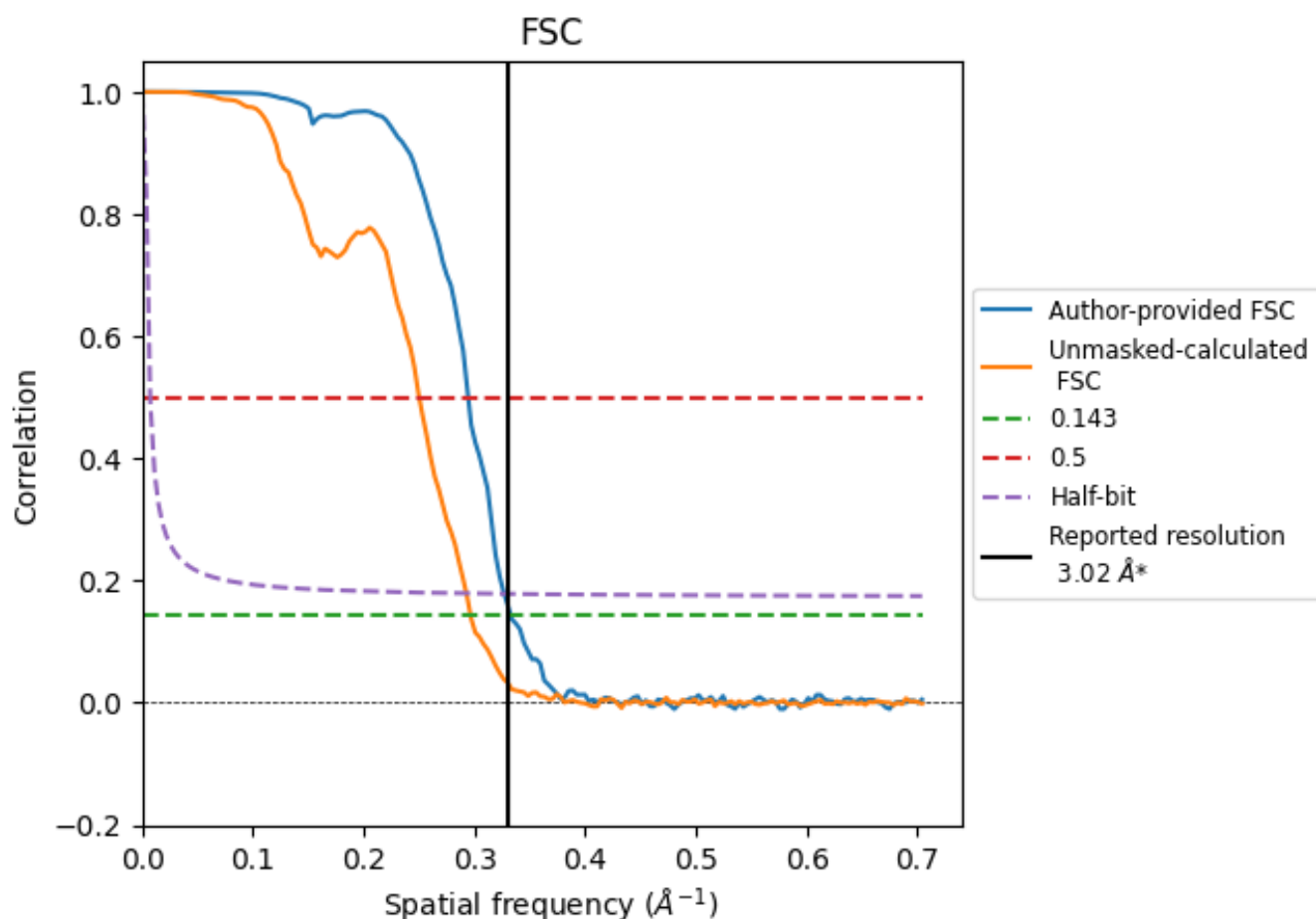
*Reported resolution corresponds to spatial frequency of 0.331 Å^{-1}

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.02	-	-
Author-provided FSC curve	3.00	3.40	3.06
Unmasked-calculated*	3.37	4.00	3.42

*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 3.37 differs from the reported value 3.02 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-17980 and PDB model 8PVY. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay ⓘ

X   Y   Z
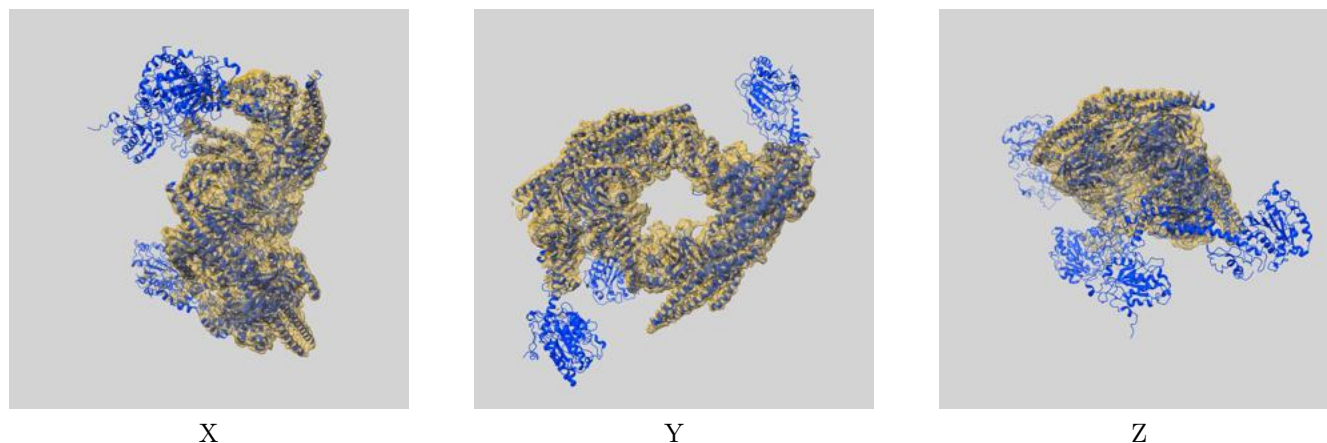
The images above show the 3D surface view of the map at the recommended contour level 0.005 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

X　　　　　　　　　　　Y　　　　　　　　　　　Z
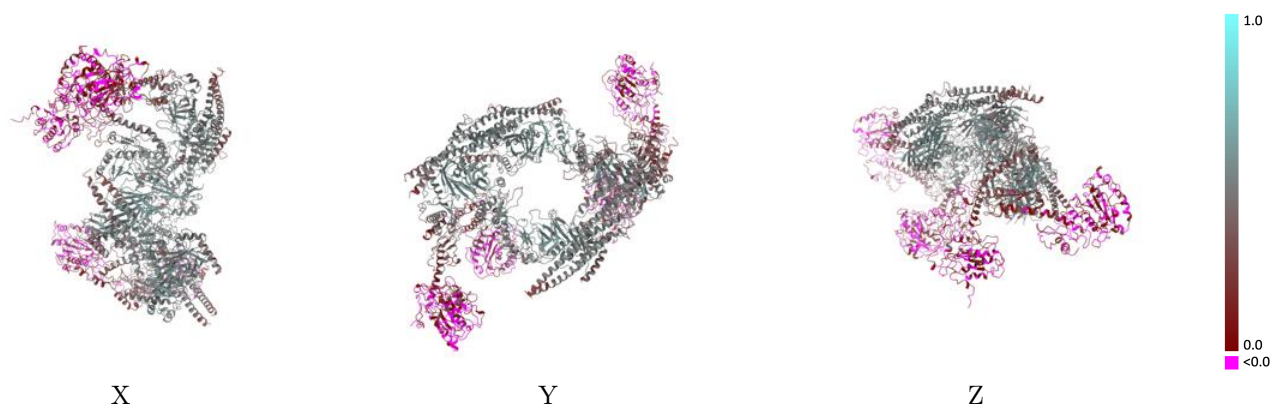
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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
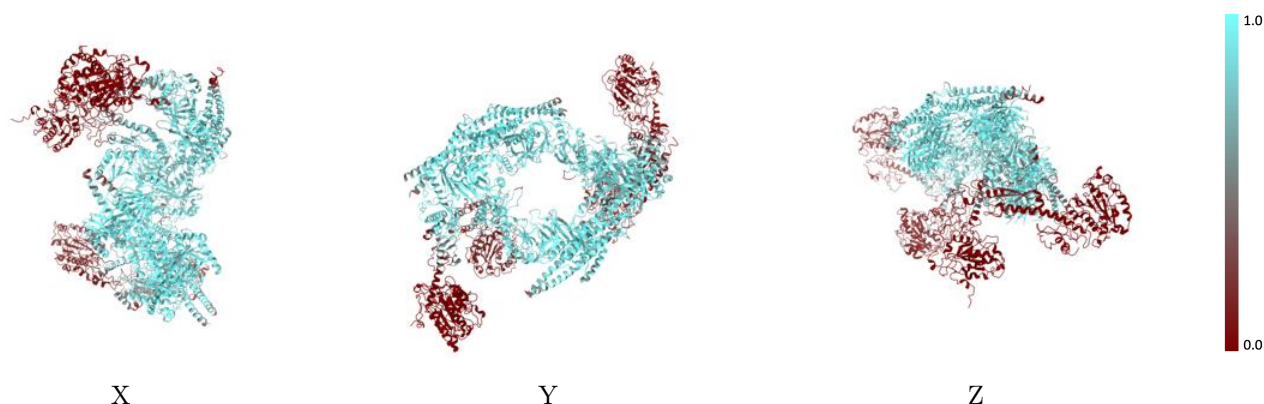
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.005).

9.4   Atom inclusion ⓘ
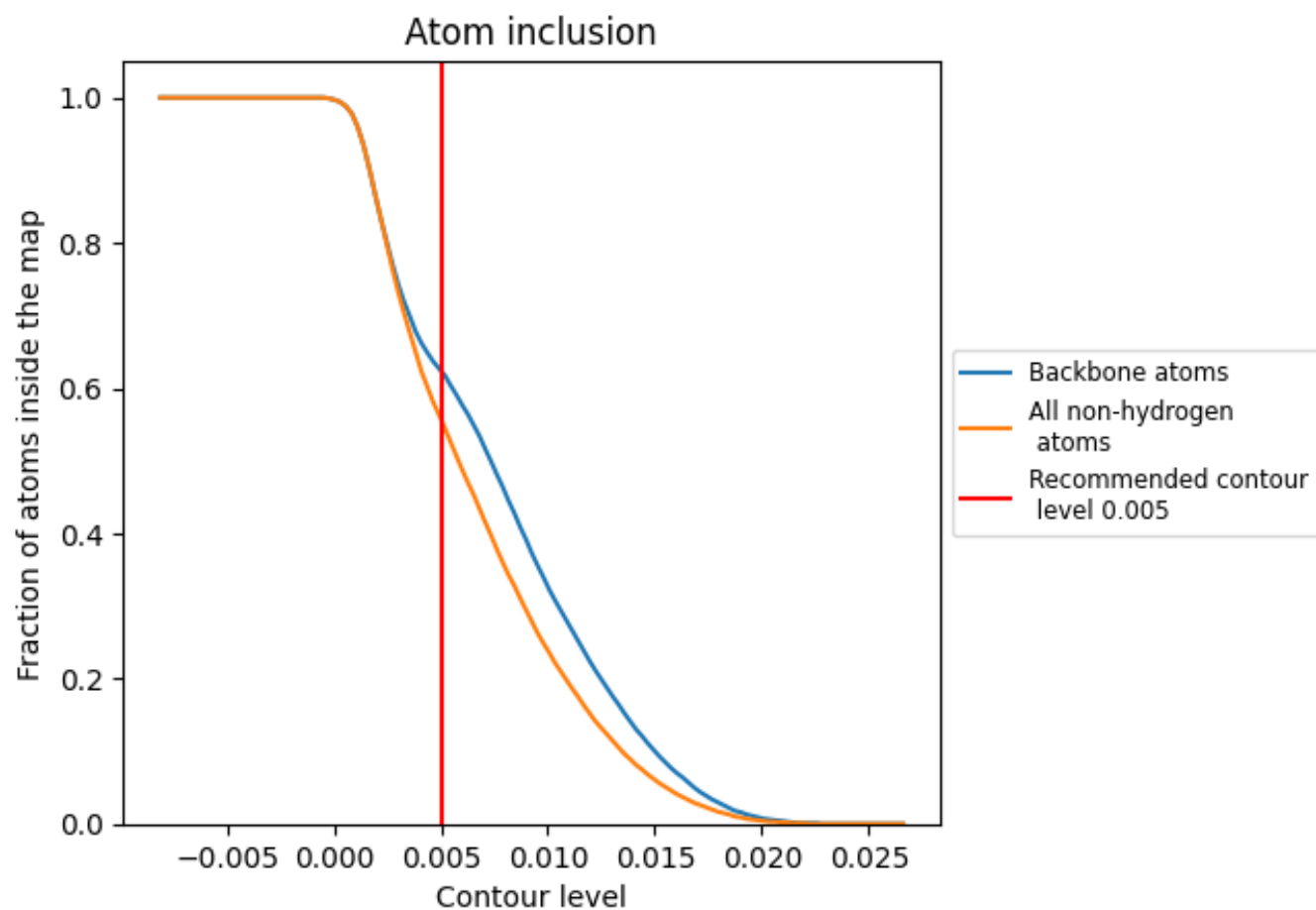
At the recommended contour level, 62% of all backbone atoms, 56% of all non-hydrogen atoms, are inside the map.

9.5   Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.005) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5580	0.3320
A	0.8980	0.4890
B	0.8980	0.5130
C	0.9190	0.5040
D	0.9050	0.4980
E	0.4670	0.2780
F	0.5580	0.3500
G	0.9040	0.4830
H	0.8260	0.4730
I	0.8460	0.4740
J	0.8970	0.5000
K	0.6160	0.3690
L	0.2620	0.2230
M	0.0040	0.0210
N	0.0000	0.0530
O	0.0000	0.0350
P	0.0000	0.0340

1.0

0.0
<0.0