WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Aug 4, 2024 – 12:51 AM JST

PDB ID	:	8XAY
EMDB ID	:	EMD-38207
Title	:	Cryo-EM structure of an anti-phage defense complex bound to ATPrS and DNA
Authors	:	An, Q.; Deng, Z.
Deposited on	:	2023-12-05
Resolution	:	2.81 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 2.81 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		0.0%
Sidechain outliers		4.0%

Worse   *Better*

■ Percentile relative to all structures
▯ Percentile relative to all EM structures
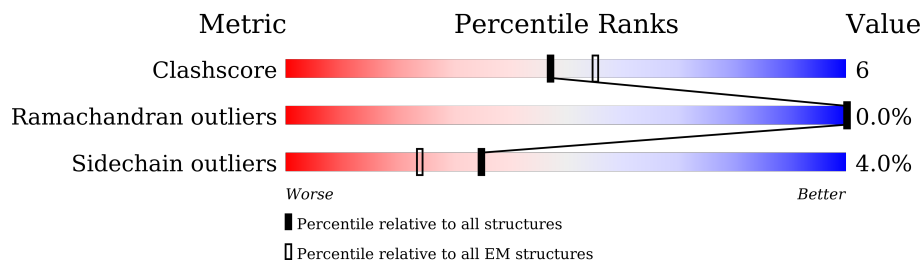
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	571	85% 14%
1	B	571	81% 18%
1	C	571	81% 18%
1	D	571	80% 18%
1	E	571	80% 19%
1	F	571	83% 15%
2	G	394	14% 49% 12% 38%
2	H	394	13% 49% 12% 38%

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Mol	Chain	Length	Quality of chain
2	I	394	14% 46% 14% · 38%
2	J	394	10% 46% 15% · 38%
2	K	394	9% 47% 14% · 38%
2	L	394	10% 48% 13% · 38%
2	M	394	35% 7% · 57%
2	N	394	37% 6% · 57%
2	O	394	39% · · 57%
2	P	394	33% 9% · 57%
2	Q	394	34% 8% · 57%
2	R	394	32% 10% · 57%
3	S	59	14% 5% · 78%
4	T	59	12% 7% · 78%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 48987 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 ATP-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	567	Total	C	N	O	S	0	0
			4539	2882	762	889	6		
1	B	567	Total	C	N	O	S	0	0
			4539	2882	762	889	6		
1	C	567	Total	C	N	O	S	0	0
			4539	2882	762	889	6		
1	D	563	Total	C	N	O	S	0	0
			4513	2867	758	882	6		
1	E	567	Total	C	N	O	S	0	0
			4539	2882	762	889	6		
1	F	567	Total	C	N	O	S	0	0
			4539	2882	762	889	6		

- Molecule 2 is a protein called DUF4297.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	G	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	H	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	I	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	J	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	K	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	L	244	Total	C	N	O	S	0	0
			2076	1339	343	389	5		
2	M	171	Total	C	N	O	S	0	0
			1436	928	236	269	3		
2	N	171	Total	C	N	O	S	0	0
			1436	928	236	269	3		
2	O	171	Total	C	N	O	S	0	0
			1436	928	236	269	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	P	171	Total	C	N	O	S	0	0
			1436	928	236	269	3		
2	Q	170	Total	C	N	O	S	0	0
			1426	923	232	268	3		
2	R	171	Total	C	N	O	S	0	0
			1436	928	236	269	3		

- Molecule 3 is DNA/RNA hybrid called S20DNA3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	S	13	Total	C	N	O	P	0	0
			268	128	49	78	13		

- Molecule 4 is a DNA chain called S20DNA4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	T	13	Total	C	N	O	P	0	0
			265	127	47	78	13		

- Molecule 5 is PHOSPHOTHIOPHOSPHORIC ACID-ADENYLATE ESTER (three-letter code: AGS) (formula: $C_{10}H_{16}N_5O_{12}P_3S$) (labeled as "Ligand of Interest" by depositor).
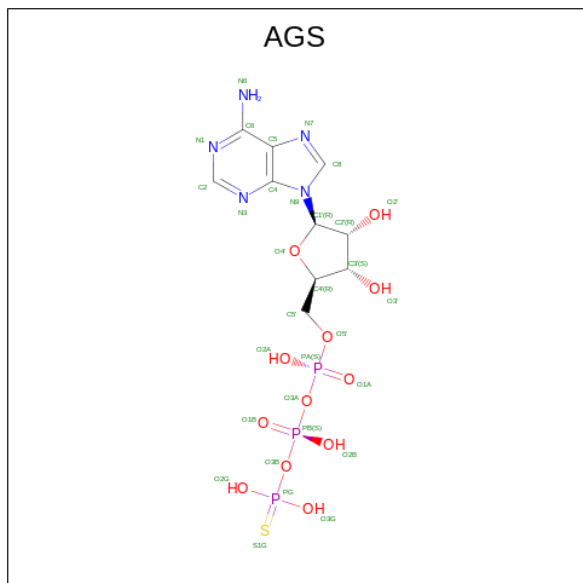
Mol	Chain	Residues	Atoms						AltConf
5	A	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

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Mol	Chain	Residues	Atoms						AltConf
5	B	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
5	C	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
5	D	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
6	A	1	Total	Mg	0
			1	1	
6	B	1	Total	Mg	0
			1	1	
6	C	1	Total	Mg	0
			1	1	
6	D	1	Total	Mg	0
			1	1	
6	E	1	Total	Mg	0
			1	1	
6	F	1	Total	Mg	0
			1	1	

- Molecule 7 is A D E N O S I N E - 5'- D I P H O S P H A T E (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).
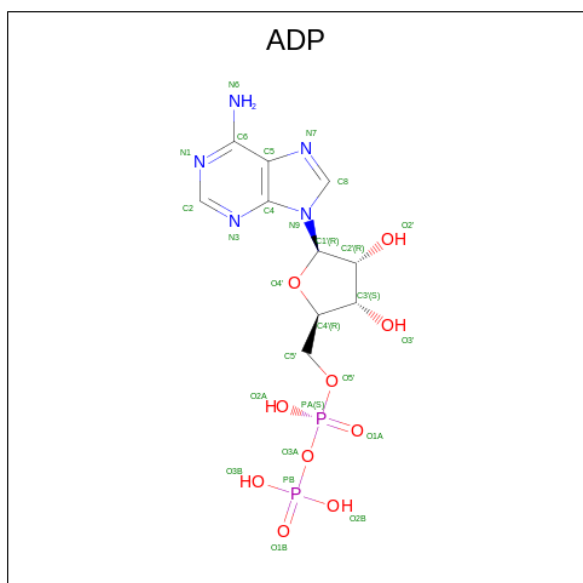
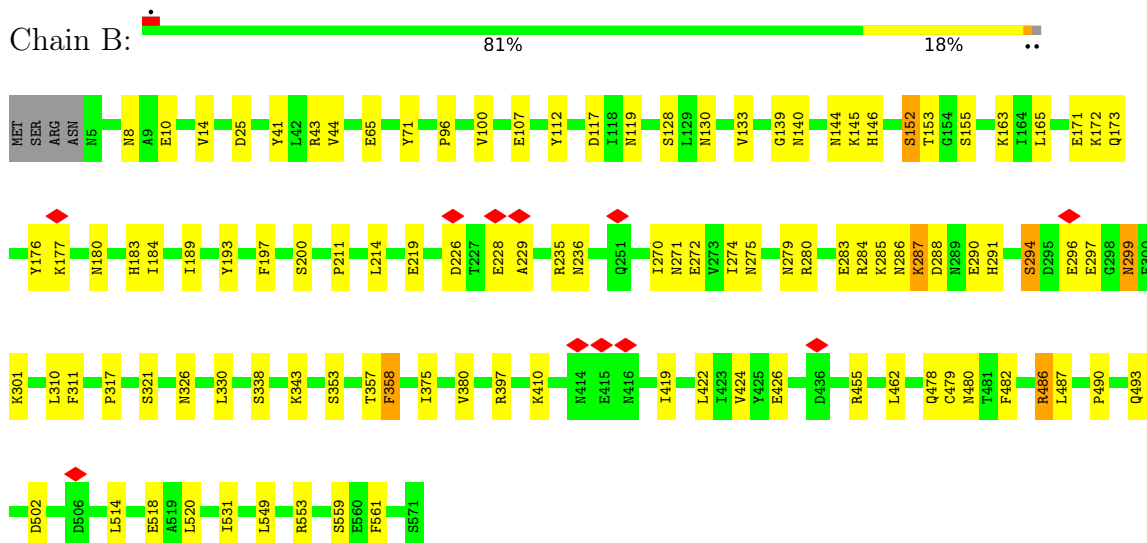| Mol	Chain	Residues	Atoms					AltConf
7	E	1	Total	C	N	O	P	0
			27	10	5	10	2	
7	F	1	Total	C	N	O	P	0
			27	10	5	10	2	

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.
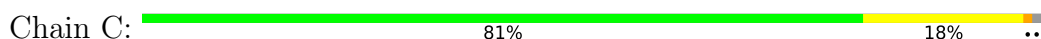
• Molecule 1: ATP-binding protein
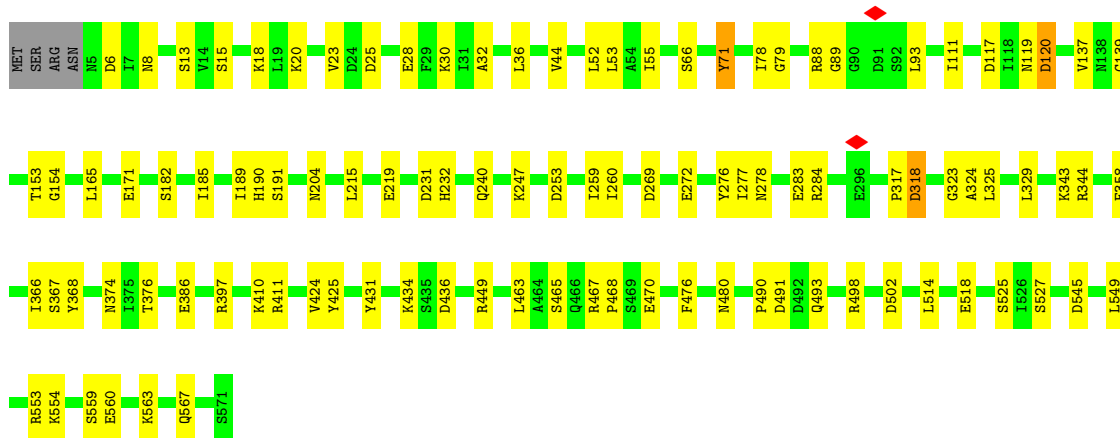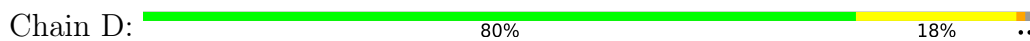
Chain A:

• Molecule 1: ATP-binding protein

Chain B:

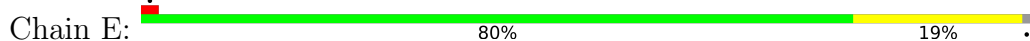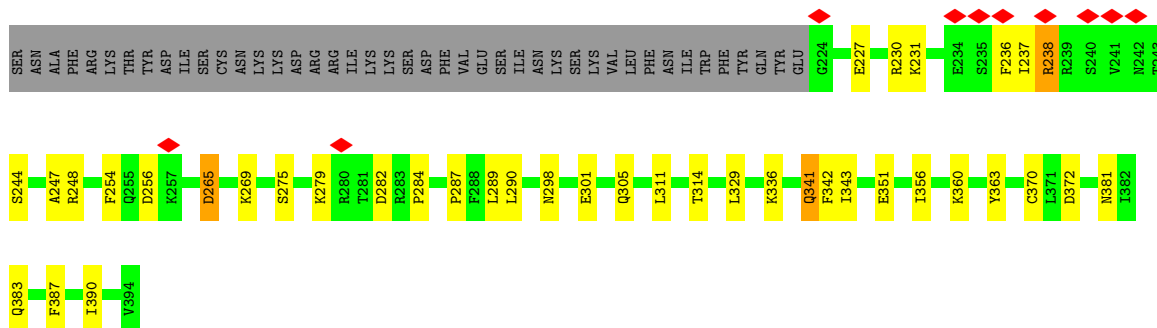• Molecule 1: ATP-binding protein

Chain C:

• Molecule 1: ATP-binding protein

Chain D:

• Molecule 1: ATP-binding protein

Chain E:

• Molecule 1: ATP-binding protein

Chain F:

83% 15%
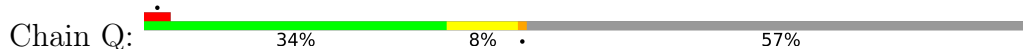
MET SER ARG ASN N5 D6 S13 V14 S15 K18 L19 K20 V23 S45 D46 N47 L52 Y71 E74 A75 S76 P77 G90 D91 S92 L93 V137 N138 G139 N140 R141 H146 I147 V150 S158 V169 D170 E171 K172 Q173 E174 G175 Y176 N180 H183

S191 E219 L225 E228 A229 N230 D231 R235 F238 I242 I248 E258 S261 F262 I277 R280 R284 K285 N286 K287 W293 S294 D295 E296 E297 F300 D303 N304 E305 N306 A307 H308 T316 P317 D318 A322 L325 R344 K370

E386 V387 R397 F400 S406 K410 R411 K412 S413 N414 E415 N416 I419 E426 H429 K430 K434 L437 K452 E453 K456 V459 T460 L461 L462 P468 S469 E470 I471 S472 E473 T474 C479 R498 D506 N509 M522 S525 P529

D545 L549 I565 S571

• Molecule 2: DUF4297

Chain G:

14% 49% 12% 38%

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

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

LYS ILE LYS HIS GLU TYR HIS ILE GLU ASN GLY LEU THR GLU GLU ASP LEU GLU GLN ALA PHE LEU ASP ARG LEU VAL ILE ASN ILE ASN ALA K151 S152 F153 D154 D155 Q156 K157 K158 E159 T160 I161 Q162 I163 I164 K165 N166 H167 F168 Q169 C170 E171 D172 Y173 E174 A175 E176 H177 F184 R185

K186 D189 I190 S191 C192 N193 K194 K195 D196 R197 R198 I199 K200 K201 S202 D203 F204 V205 E206 S207 I208 N209 K210 S211 K212 V213 L214 F215 N216 I217 W218 F219 Y222 R225 K226 E227 F236 I237 E253 F254 I260 K261 D265 N273 W274 S275 N276 L277 S278 K279 R280

P284 P287 D296 Y300 N304 T314 D315 T325 L329 K336 H339 I346 N350 N357 T367 E368 N369 N381 I382 Q383 V384 K385 D386 F387 A388 D389 I393 V394

• Molecule 2: DUF4297

Chain H:

13% 49% 12% 38%

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

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

LYS ILE LYS HIS GLU TYR HIS ILE GLU ASN GLY LEU THR GLU GLU ASP LEU GLU GLN ALA PHE LEU ASP ARG LEU VAL ILE ASN ILE ASN ALA K151 S152 F153 D154 D155 Q156 K157 K158 E159 T160 I161 Q162 I163 I164 K165 N166 H167 F168 Q169 C170 E171 D172 Y173 E174 L179 N182 R185

• Molecule 2: DUF4297

Chain I:

• Molecule 2: DUF4297

Chain J:

• Molecule 2: DUF4297

Chain K:

9%

47%   14%   •   38%

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

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

LYS ILE LYS HIS GLU TYR HIS ILE GLU ASN GLY LEU THR GLU GLU ASP LEU GLN ALA PHE LEU ASP ARG LEU ILE ASN ILE ASN ALA K151 S152 F153 D154 D155 Q156 K157 K158 E159 Q162 I163 I164 K165 N166 H167 F168 Q169 C170 E171 D172 Y173 E174 A175 E176 Y180 F184 R185

K186 D189 I190 S191 C192 N193 K194 K195 D196 R197 R198 I199 K200 K201 S202 D203 F204 V205 E206 N209 K210 F215 N216 I217 W218 R225 K231 S235 R239 T243 F254 Q255 I260 V263 K264 D265 Y268 S272 S275 N276 L277 S278 T281 D282

P287 N298 L299 Y300 N304 Q305 L306 L311 D315 P326 L329 I330 H339 F340 Q341 I346 S355 R359 V362 E368 N369 C370 I373 P378 N381 V384 K385 D386 D389 I390 V394

● Molecule 2: DUF4297

Chain L:

10%

48%   13%   •   38%

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

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

LYS ILE LYS HIS GLU TYR HIS ILE GLU ASN GLY LEU THR GLU GLU ASP LEU GLN ALA PHE LEU ASP ARG LEU ILE ASN ILE ASN ALA K151 S152 F153 D154 D155 Q156 K157 K158 E159 T160 I161 Q162 I163 I164 K165 N166 H167 F168 Q169 C170 E171 D172 Y173 E174 H177 R185 K186 T187

Y188 D189 I190 S191 C192 N193 K194 K195 D196 R197 R198 I199 K200 K201 S202 D203 F204 V205 E206 S207 I208 N209 K210 F215 N216 I217 R225 F236 I237 R238 S244 R248 F254 Q255 D256 D259 T262 Q271 S272 N273 L277 S278 K279 R280 T281 E301 Q305

L311 T314 K320 T325 L329 K336 E337 I338 H339 F340 Q341 F342 D345 I346 N354 V362 L371 D372 I373 N381 K385 D386 V394

● Molecule 2: DUF4297

Chain M:

•

35%   7%   •   57%

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

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

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

SER ASN ALA PHE ARG LYS THR TYR ASP ILE LEU SER CYS ASN LYS LYS ASP ARG ARG ILE LYS LYS SER ASP PHE VAL GLU SER ILE SER ILE ASN ALA LYS SER LYS VAL LEU PHE ASN ILE TRP PHE TYR GLN ILE TYR GLU G224 Y228 L229 R230 K231 E234 S235 F236 I237 R238 R239 S240 V241 N242 T243

S244 R248 F254 Q255 D256 K257 T258 D259 I260 Q271 S275 S286 L290 K303 L311 D315 S322 L329 Q341 F342 I343 K360 Y363 Q364 T367 E368 N369 C370 N381 I382 Q383 V384 K385 D386 D389 V394

• Molecule 2: DUF4297

Chain N:

37%   6%   57%

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

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

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

SER ASN ALA PHE ARG LYS THR TYR ASP ILE SER CYS ASN LYS LYS ASP ARG ILE LYS LYS SER ASP PHE VAL GLU SER ILE ASN LYS SER LYS VAL LEU PHE ASN ILE TRP PHE GLN TYR GLU G224 R225 K226 E227 E234 S235 F236 I237 R238 R239 S240 V241 R248 F254

I270 Q271 S275 R280 P284 P287 T294 N298 L329 K336 Q341 F342 I346 I356 K360 Y363 N369 C370 D389 E392 I393 V394

• Molecule 2: DUF4297

Chain O:

39%   57%

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

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

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

SER ASN ALA PHE ARG LYS THR TYR ASP ILE SER CYS ASN LYS LYS ASP ARG ILE LYS LYS SER ASP PHE VAL GLU SER ILE ASN LYS SER LYS VAL LEU PHE ASN ILE TRP PHE GLN TYR GLU G224 R225 K226 E227 E234 S235 F236 I237 R238 R239 S240 V241 F254 K264

D265 K269 I270 Q271 S272 N273 W274 S275 T294 N298 L299 Y300 E301 Q305 N308 S322 V323 F342 D386 V394

• Molecule 2: DUF4297

Chain P:

33%   9%   57%

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

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

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

• Molecule 2: DUF4297

Chain Q: 34%   8%   •   57%

• Molecule 2: DUF4297

Chain R: 32%   10%   •   57%

C370 L371 N381 I382 K391 V394

- Molecule 3: S20DNA3

Chain S: 14%   5%   ·   78%

G1 C2 T3 T4 T5 G13 DC DC DA DG DA DC DA DT DT DA DA DC DG DC DT DT DC DT DG DG DA DG DA DA DA DC DT DC DA DA DC DG DA DG DC DT DG DG DA DC DG DC DG DA DT

- Molecule 4: S20DNA4

Chain T: 12%   7%   ·   78%

DA DT DC DC DG DC DG DT DC DC DA DG DC DT DC DG DT DG DA DG DT DT DC DT DC DA DG DA DA DC DG DC DT DT DG DT DC DT DG DT DC DT DG DG DC1 T5 T8 A9 A10 A11 G12 C13

4　Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	175703	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	JEOL CRYO ARM 300	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	40	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.263	Depositor
Minimum map value	-1.095	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.068	Depositor
Recommended contour level	0.19	Depositor
Map size (Å)	304.0, 304.0, 304.0	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.95, 0.95, 0.95	Depositor

5   Model quality   (i)

5.1   Standard geometry   (i)

Bond lengths and bond angles in the following residue types are not validated in this section: AGS, MG, ADP

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	0.30	0/4625	0.56	0/6248
1	B	0.31	0/4625	0.56	1/6248 (0.0%)
1	C	0.33	1/4625 (0.0%)	0.64	6/6248 (0.1%)
1	D	0.30	0/4598	0.56	3/6209 (0.0%)
1	E	0.31	0/4625	0.57	2/6248 (0.0%)
1	F	0.31	0/4625	0.57	2/6248 (0.0%)
2	G	0.30	0/2126	0.57	1/2861 (0.0%)
2	H	0.30	0/2126	0.56	0/2861
2	I	0.29	0/2126	0.59	1/2861 (0.0%)
2	J	0.29	0/2126	0.59	1/2861 (0.0%)
2	K	0.29	0/2126	0.56	1/2861 (0.0%)
2	L	0.29	0/2126	0.58	2/2861 (0.1%)
2	M	0.29	0/1470	0.54	0/1983
2	N	0.28	0/1470	0.52	0/1983
2	O	0.28	0/1470	0.51	0/1983
2	P	0.31	0/1470	0.57	1/1983 (0.1%)
2	Q	0.27	0/1460	0.54	1/1971 (0.1%)
2	R	0.29	0/1470	0.56	2/1983 (0.1%)
3	S	0.88	0/300	1.22	2/461 (0.4%)
4	T	0.63	0/296	1.31	4/454 (0.9%)
All	All	0.31	1/49885 (0.0%)	0.59	30/67416 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	490	PRO	CG-CD	-9.56	1.19	1.50

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	490	PRO	N-CD-CG	-15.56	79.85	103.20
1	C	490	PRO	CA-CB-CG	-9.83	85.33	104.00
1	C	318	ASP	CB-CG-OD2	9.83	127.14	118.30
2	R	259	ASP	CB-CG-OD1	8.04	125.54	118.30
2	L	203	ASP	CB-CG-OD1	7.99	125.49	118.30
4	T	9	DA	O5'-P-OP2	-7.77	98.70	105.70
3	S	4	DT	O5'-P-OP1	-7.57	98.89	105.70
1	C	491	ASP	CB-CG-OD2	7.55	125.09	118.30
2	Q	259	ASP	CB-CG-OD1	7.34	124.91	118.30
2	K	203	ASP	CB-CG-OD1	7.06	124.66	118.30
1	C	490	PRO	CA-N-CD	-6.71	102.10	111.50
4	T	10	DA	C4'-C3'-O3'	-6.69	92.97	109.70
1	F	170	ASP	CB-CG-OD2	6.68	124.31	118.30
2	P	372	ASP	CB-CG-OD2	6.45	124.11	118.30
3	S	3	DT	C4'-C3'-O3'	-6.39	93.73	109.70
2	G	237	ILE	CG1-CB-CG2	-6.06	98.07	111.40
1	E	269	ASP	CB-CG-OD1	5.78	123.50	118.30
4	T	9	DA	C2'-C3'-O3'	-5.70	93.80	112.60
2	L	345	ASP	CB-CG-OD1	5.58	123.32	118.30
1	F	461	LEU	CA-CB-CG	5.53	128.03	115.30
2	I	259	ASP	CB-CG-OD1	5.52	123.27	118.30
4	T	9	DA	O5'-P-OP1	5.34	117.11	110.70
2	J	259	ASP	CB-CG-OD1	5.33	123.10	118.30
1	E	253	ASP	CB-CG-OD1	5.33	123.09	118.30
1	D	506	ASP	CB-CG-OD1	5.19	122.97	118.30
1	D	436	ASP	CB-CG-OD2	5.10	122.89	118.30
1	D	253	ASP	CB-CG-OD2	5.09	122.89	118.30
2	R	282	ASP	CB-CG-OD1	5.06	122.86	118.30
1	C	436	ASP	CB-CG-OD1	5.02	122.82	118.30
1	B	117	ASP	CB-CG-OD2	5.02	122.81	118.30

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	4539	0	4524	51	0
1	B	4539	0	4523	71	0
1	C	4539	0	4522	62	0
1	D	4513	0	4500	67	0
1	E	4539	0	4524	66	0
1	F	4539	0	4524	52	0
2	G	2076	0	2029	29	0
2	H	2076	0	2029	24	0
2	I	2076	0	2029	31	0
2	J	2076	0	2029	32	0
2	K	2076	0	2029	33	0
2	L	2076	0	2029	26	0
2	M	1436	0	1412	16	0
2	N	1436	0	1412	13	0
2	O	1436	0	1412	11	0
2	P	1436	0	1412	21	0
2	Q	1426	0	1398	19	0
2	R	1436	0	1412	23	0
3	S	268	0	148	14	0
4	T	265	0	148	15	0
5	A	31	0	12	2	0
5	B	31	0	12	1	0
5	C	31	0	12	2	0
5	D	31	0	12	1	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
6	E	1	0	0	0	0
6	F	1	0	0	0	0
7	E	27	0	12	1	0
7	F	27	0	12	0	0
All	All	48987	0	48117	616	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.

All (616) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:229:ALA:HB1	4:T:12:DG:C4'	1.48	1.40
1:B:229:ALA:CB	4:T:12:DG:H4'	1.58	1.29

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:S:2:DC:N4	4:T:12:DG:H1	1.59	1.00
1:D:233:ASN:HD22	3:S:2:DC:H5'	1.41	0.84
3:S:2:DC:H2"	3:S:3:DT:H5'	1.65	0.79
4:T:9:DA:H2"	4:T:10:DA:H5'	1.69	0.73
2:I:254:PHE:HE2	2:I:263:VAL:HG21	1.52	0.73
1:B:229:ALA:HB1	4:T:12:DG:H4'	0.76	0.72
1:E:549:LEU:HD22	1:F:139:GLY:HA3	1.73	0.70
2:K:359:ARG:HH12	2:K:378:PRO:HG2	1.56	0.70
1:C:549:LEU:HD22	1:D:139:GLY:HA3	1.75	0.68
1:A:549:LEU:HD22	1:B:139:GLY:HA3	1.77	0.67
1:A:510:LEU:HD21	1:A:531:ILE:HD11	1.77	0.67
2:P:370:CYS:SG	2:P:381:ASN:ND2	2.68	0.67
1:C:55:ILE:HD12	1:C:78:ILE:HG21	1.76	0.67
1:A:553:ARG:NH2	1:B:119:ASN:O	2.28	0.67
2:K:275:SER:HB3	2:K:287:PRO:HD3	1.78	0.65
1:C:284:ARG:NH2	4:T:5:DT:OP1	2.28	0.65
1:F:473:GLU:OE2	1:F:498:ARG:NH2	2.29	0.65
1:C:325:LEU:HD23	1:C:329:LEU:HD11	1.78	0.65
1:D:234:GLN:HG3	3:S:2:DC:OP2	1.96	0.64
2:J:367:THR:HG22	2:J:368:GLU:HG3	1.78	0.64
1:A:144:ASN:ND2	1:F:545:ASP:OD2	2.31	0.64
1:D:233:ASN:HD22	3:S:2:DC:C5'	2.11	0.64
2:N:238:ARG:HG3	2:N:240:SER:HB3	1.80	0.63
1:F:429:HIS:HB2	1:F:470:GLU:HB2	1.80	0.63
2:Q:301:GLU:OE2	2:Q:305:GLN:NE2	2.30	0.63
2:G:275:SER:HB3	2:G:287:PRO:HD3	1.80	0.63
2:I:235:SER:O	2:I:238:ARG:NH2	2.30	0.63
2:L:279:LYS:HA	2:L:336:LYS:HD3	1.80	0.63
2:J:267:ILE:HD13	2:J:306:LEU:HD11	1.80	0.62
1:B:229:ALA:HB2	4:T:12:DG:O3'	1.99	0.62
2:K:255:GLN:NE2	2:K:368:GLU:OE1	2.31	0.62
1:A:228:GLU:OE1	1:B:235:ARG:NH2	2.32	0.62
1:F:248:ILE:HD11	1:F:308:HIS:HB2	1.82	0.62
1:C:367:SER:HG	1:C:376:THR:HG1	1.45	0.62
1:C:137:VAL:HB	1:C:525:SER:HB2	1.82	0.62
1:B:14:VAL:HG13	1:B:96:PRO:HG3	1.81	0.62
1:B:549:LEU:HD22	1:C:139:GLY:HA3	1.80	0.61
2:K:225:ARG:NH2	2:K:389:ASP:OD1	2.33	0.61
2:P:248:ARG:HG2	2:P:363:TYR:HE2	1.65	0.61
1:B:229:ALA:CB	4:T:12:DG:C4'	2.38	0.61
2:M:271:GLN:O	2:M:275:SER:OG	2.18	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:230:ASN:O	3:S:1:DG:O3'	2.19	0.61
1:E:14:VAL:HG13	1:E:96:PRO:HG3	1.83	0.61
1:E:8:ASN:HB2	1:E:25:ASP:HB2	1.82	0.60
1:E:487:LEU:HD22	1:E:492:ASP:HB3	1.82	0.60
2:Q:370:CYS:SG	2:Q:371:LEU:N	2.72	0.60
2:R:367:THR:HG22	2:R:368:GLU:HG3	1.81	0.60
1:C:553:ARG:HB3	1:D:173:GLN:HG3	1.81	0.60
1:D:367:SER:HG	1:D:376:THR:HG1	1.47	0.60
1:D:233:ASN:ND2	3:S:2:DC:H5'	2.14	0.60
1:E:145:LYS:HB3	1:E:480:ASN:HB2	1.82	0.60
1:A:8:ASN:HB2	1:A:25:ASP:HB2	1.84	0.60
1:D:78:ILE:O	1:D:88:ARG:NH1	2.35	0.60
1:C:13:SER:HB2	1:C:20:LYS:HB2	1.82	0.60
2:L:301:GLU:OE1	2:L:305:GLN:NE2	2.33	0.60
2:H:215:PHE:HB2	2:H:383:GLN:HB3	1.84	0.60
1:A:269:ASP:HB3	1:A:272:GLU:HB2	1.84	0.59
2:L:346:ILE:HD13	2:L:371:LEU:HD13	1.84	0.59
4:T:8:DT:H2"	4:T:9:DA:H5'	1.83	0.59
2:M:248:ARG:HG2	2:M:363:TYR:HE2	1.67	0.59
1:E:203:LEU:HB3	1:E:208:LEU:HB2	1.84	0.59
2:I:320:LYS:NZ	2:O:300:TYR:OH	2.35	0.59
1:B:193:TYR:OH	1:B:426:GLU:OE2	2.19	0.59
2:H:225:ARG:NH2	2:H:389:ASP:OD1	2.35	0.59
1:E:48:GLN:NE2	2:G:273:ASN:OD1	2.36	0.59
2:H:212:LYS:HA	2:H:381:ASN:HB2	1.85	0.59
1:D:497:LYS:HB2	1:D:508:THR:HG21	1.84	0.59
2:R:271:GLN:O	2:R:275:SER:OG	2.18	0.59
2:R:245:PRO:HG2	2:R:283:ARG:HB3	1.84	0.59
2:O:271:GLN:O	2:O:275:SER:OG	2.21	0.58
2:R:364:GLN:HE22	2:R:371:LEU:H	1.50	0.58
1:A:13:SER:HB3	1:A:20:LYS:HB2	1.85	0.58
1:A:280:ARG:HA	1:A:283:GLU:HG3	1.84	0.58
1:A:139:GLY:HA3	1:F:549:LEU:HD22	1.86	0.58
2:H:269:LYS:NZ	2:H:391:LYS:O	2.36	0.58
1:A:467:ARG:HD3	1:B:478:GLN:HE22	1.69	0.58
2:N:225:ARG:NH1	2:N:392:GLU:OE1	2.36	0.58
1:F:219:GLU:OE1	1:F:397:ARG:NH2	2.36	0.58
1:C:269:ASP:HB3	1:C:272:GLU:HB2	1.86	0.58
1:E:489:ASN:HB3	1:E:492:ASP:HB2	1.86	0.58
2:I:275:SER:HB3	2:I:287:PRO:HD3	1.84	0.58
2:I:230:ARG:NH1	2:I:234:GLU:OE1	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:374:PRO:O	2:J:379:GLN:NE2	2.37	0.57
1:E:192:GLU:HG2	1:E:543:SER:HB2	1.85	0.57
2:I:239:ARG:HH21	2:I:243:THR:HG21	1.70	0.57
2:Q:271:GLN:O	2:Q:275:SER:OG	2.21	0.57
1:C:189:ILE:HD11	1:C:431:TYR:HE2	1.68	0.57
1:E:245:ASN:HD22	1:E:273:VAL:HG23	1.69	0.57
2:O:301:GLU:OE2	2:O:305:GLN:NE2	2.36	0.57
4:T:12:DG:H2"	4:T:13:DC:H5'	1.85	0.57
2:L:244:SER:O	2:L:248:ARG:NH2	2.38	0.57
2:R:264:LYS:NZ	2:R:309:GLU:OE2	2.37	0.57
1:C:153:THR:OG1	1:D:478:GLN:OE1	2.22	0.57
2:L:163:ILE:HG23	2:L:164:ILE:HD12	1.87	0.57
1:E:23:VAL:HB	1:E:71:TYR:HB3	1.86	0.57
2:G:367:THR:O	2:G:383:GLN:NE2	2.35	0.57
1:E:514:LEU:HD21	1:E:531:ILE:HD12	1.86	0.57
1:F:52:LEU:HD21	1:F:77:PRO:HB3	1.85	0.57
2:K:277:LEU:HD11	2:K:339:HIS:HA	1.87	0.56
2:M:367:THR:HG22	2:M:368:GLU:HG3	1.86	0.56
1:A:6:ASP:OD1	1:A:6:ASP:N	2.35	0.56
1:B:486:ARG:NH2	1:C:480:ASN:OD1	2.38	0.56
1:F:13:SER:HB2	1:F:20:LYS:HD2	1.87	0.56
2:N:284:PRO:HG3	2:N:336:LYS:HE3	1.86	0.56
1:A:280:ARG:HH21	1:A:325:LEU:HD12	1.69	0.56
2:N:235:SER:O	2:N:238:ARG:NH2	2.38	0.56
1:E:214:LEU:O	1:E:397:ARG:NH2	2.38	0.56
2:K:282:ASP:OD1	2:K:282:ASP:N	2.37	0.56
2:N:271:GLN:O	2:N:275:SER:OG	2.23	0.56
2:Q:345:ASP:OD1	2:Q:345:ASP:N	2.38	0.56
1:B:214:LEU:O	1:B:397:ARG:NH2	2.39	0.56
2:M:386:ASP:OD1	2:M:386:ASP:N	2.38	0.56
1:D:434:LYS:N	1:D:470:GLU:O	2.39	0.56
1:E:365:LEU:HD13	1:E:395:ILE:HG23	1.88	0.56
2:J:162:GLN:O	2:J:166:ASN:ND2	2.39	0.56
2:L:386:ASP:N	2:L:386:ASP:OD1	2.39	0.55
5:C:601:AGS:O2G	5:C:601:AGS:O2B	2.24	0.55
1:D:137:VAL:HB	1:D:525:SER:HB2	1.89	0.55
2:L:259:ASP:HB3	2:L:262:THR:HG23	1.87	0.55
1:B:343:LYS:HG3	1:C:259:ILE:HA	1.87	0.55
2:G:203:ASP:OD1	2:G:203:ASP:N	2.36	0.55
2:J:281:THR:O	2:J:336:LYS:NZ	2.39	0.55
2:K:176:GLU:HA	2:K:180:TYR:HB3	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:137:VAL:HB	1:F:525:SER:HB3	1.89	0.55
1:F:169:VAL:O	1:F:180:ASN:ND2	2.39	0.55
2:Q:303:LYS:NZ	2:Q:344:ASN:OD1	2.40	0.55
2:G:284:PRO:HG3	2:G:336:LYS:HE3	1.89	0.55
2:K:265:ASP:N	2:K:265:ASP:OD1	2.37	0.55
1:A:43:ARG:NH1	1:A:107:GLU:OE2	2.40	0.55
1:F:191:SER:O	1:F:191:SER:OG	2.25	0.55
2:I:248:ARG:HG2	2:I:363:TYR:HE1	1.72	0.54
2:M:370:CYS:SG	2:M:381:ASN:ND2	2.80	0.54
1:A:41:TYR:OH	1:A:112:TYR:OH	2.23	0.54
1:E:246:LYS:NZ	1:E:264:SER:O	2.33	0.54
2:K:198:ARG:NH1	2:K:199:ILE:O	2.40	0.54
1:A:194:GLU:HG3	1:A:202:VAL:HG21	1.89	0.54
1:B:172:LYS:HG2	1:B:180:ASN:HB3	1.88	0.54
2:J:210:LYS:HD3	2:J:214:LEU:HD21	1.89	0.54
1:A:146:HIS:HB2	1:A:479:CYS:HA	1.89	0.54
1:D:15:SER:HB2	1:D:18:LYS:HB3	1.88	0.54
1:F:522:MET:HG2	1:F:529:PRO:HB3	1.90	0.54
2:K:171:GLU:HG2	2:K:174:GLU:HB2	1.89	0.54
1:D:138:ASN:HB3	1:D:141:ARG:HB2	1.90	0.54
2:P:301:GLU:OE2	2:P:305:GLN:NE2	2.40	0.54
1:D:488:THR:HB	1:E:501:PRO:HB3	1.90	0.54
2:H:235:SER:O	2:H:238:ARG:NH2	2.41	0.54
2:I:281:THR:O	2:I:336:LYS:NZ	2.37	0.54
2:I:386:ASP:N	2:I:386:ASP:OD1	2.39	0.54
2:K:185:ARG:NH1	2:K:215:PHE:O	2.40	0.54
1:B:271:ASN:O	1:B:275:ASN:ND2	2.40	0.54
1:B:487:LEU:O	1:B:493:GLN:NE2	2.39	0.54
1:D:141:ARG:HA	1:D:144:ASN:HB2	1.89	0.54
1:D:228:GLU:OE2	3:S:1:DG:H5'	2.08	0.54
1:F:242:ILE:HD12	1:F:262:PHE:HE1	1.71	0.54
2:J:300:TYR:O	2:J:304:ASN:ND2	2.33	0.54
2:L:271:GLN:NE2	2:L:339:HIS:O	2.39	0.54
5:A:601:AGS:S1G	1:B:455:ARG:NH2	2.80	0.54
1:D:549:LEU:HD22	1:E:139:GLY:HA3	1.90	0.54
1:E:210:LEU:HD13	1:E:394:LEU:HD23	1.90	0.54
2:G:185:ARG:HH11	2:G:214:LEU:HD23	1.72	0.54
1:C:185:ILE:HD11	1:C:366:ILE:HG22	1.90	0.53
1:C:231:ASP:OD1	1:C:231:ASP:N	2.40	0.53
1:B:357:THR:OG1	1:B:358:PHE:N	2.41	0.53
1:D:113:SER:O	1:D:121:ARG:NH2	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:386:GLU:HG2	1:F:387:VAL:HG13	1.91	0.53
2:G:315:ASP:N	2:G:315:ASP:OD1	2.39	0.53
1:D:8:ASN:HB2	1:D:25:ASP:HB2	1.90	0.53
1:E:400:PHE:HA	1:E:459:VAL:HG21	1.90	0.53
2:O:264:LYS:NZ	2:O:305:GLN:OE1	2.39	0.53
1:B:279:ASN:ND2	1:B:310:LEU:O	2.38	0.53
1:C:182:SER:O	1:C:374:ASN:ND2	2.42	0.53
2:Q:282:ASP:OD1	2:Q:282:ASP:N	2.41	0.53
2:R:301:GLU:OE2	2:R:305:GLN:NE2	2.26	0.53
1:A:549:LEU:HD11	1:B:171:GLU:HG2	1.91	0.53
2:G:300:TYR:O	2:G:304:ASN:ND2	2.42	0.53
1:E:234:GLN:HG2	1:E:329:LEU:HD23	1.91	0.53
1:A:285:LYS:HB3	1:A:323:GLY:HA2	1.91	0.52
1:A:453:GLU:OE1	1:F:344:ARG:NH2	2.32	0.52
1:C:253:ASP:OD1	1:C:253:ASP:N	2.37	0.52
2:P:275:SER:HB3	2:P:287:PRO:HD3	1.91	0.52
1:A:190:HIS:NE2	1:A:427:GLU:OE2	2.41	0.52
1:C:283:GLU:HG3	1:C:323:GLY:HA3	1.90	0.52
2:J:375:SER:HA	2:J:379:GLN:HE22	1.75	0.52
1:D:461:LEU:HD13	1:D:463:LEU:HD13	1.91	0.52
2:P:314:THR:HG23	2:P:329:LEU:HD23	1.91	0.52
2:J:282:ASP:OD1	2:J:282:ASP:N	2.39	0.52
1:B:10:GLU:OE1	2:K:278:SER:OG	2.24	0.52
1:D:269:ASP:HB3	1:D:272:GLU:HB2	1.90	0.52
2:L:185:ARG:NH1	2:L:215:PHE:O	2.40	0.52
1:F:280:ARG:HH21	1:F:325:LEU:HD12	1.75	0.52
1:A:305:GLU:O	1:A:308:HIS:HE1	1.93	0.52
1:B:229:ALA:HB1	4:T:12:DG:O4'	2.06	0.52
1:B:520:LEU:HB2	1:B:531:ILE:HD13	1.91	0.52
2:O:298:ASN:HA	2:O:301:GLU:HB3	1.91	0.52
1:A:325:LEU:HD22	1:A:329:LEU:HD21	1.92	0.51
2:O:269:LYS:HE3	2:O:273:ASN:HD21	1.75	0.51
1:B:145:LYS:HB3	1:B:480:ASN:HB2	1.92	0.51
1:D:23:VAL:HB	1:D:71:TYR:HB3	1.92	0.51
1:E:215:LEU:HD22	1:E:219:GLU:HB3	1.92	0.51
2:G:346:ILE:HD12	2:G:346:ILE:H	1.75	0.51
2:P:298:ASN:HA	2:P:301:GLU:HB3	1.90	0.51
1:C:425:TYR:HB2	1:C:463:LEU:HD12	1.91	0.51
2:H:264:LYS:NZ	2:H:305:GLN:OE1	2.43	0.51
2:Q:227:GLU:O	2:Q:231:LYS:NZ	2.40	0.51
1:A:521:ILE:HG22	1:A:526:ILE:HG21	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:41:TYR:HH	1:B:112:TYR:HH	1.55	0.51
1:C:397:ARG:HG2	1:C:449:ARG:HH21	1.75	0.51
1:D:500:LEU:HD23	1:D:501:PRO:HD2	1.91	0.51
1:E:245:ASN:HB3	1:E:268:PHE:HB2	1.91	0.51
1:F:452:LYS:NZ	1:F:474:THR:OG1	2.36	0.51
2:H:253:GLU:OE2	2:H:255:GLN:NE2	2.43	0.51
2:K:386:ASP:OD1	2:K:386:ASP:N	2.43	0.51
2:L:278:SER:O	2:L:281:THR:OG1	2.29	0.51
3:S:2:DC:H2'	3:S:3:DT:C6	2.46	0.51
1:A:506:ASP:OD1	1:A:509:ASN:ND2	2.44	0.51
1:B:43:ARG:NH1	1:B:107:GLU:OE2	2.43	0.51
2:H:185:ARG:O	2:H:189:ASP:N	2.41	0.51
1:B:140:ASN:O	1:B:144:ASN:ND2	2.43	0.51
2:I:364:GLN:HE22	2:I:371:LEU:H	1.57	0.51
1:D:5:ASN:ND2	1:D:8:ASN:OD1	2.42	0.51
1:E:215:LEU:HD23	1:E:394:LEU:HD13	1.92	0.51
2:I:152:SER:H	2:I:155:ASP:HB2	1.76	0.51
1:C:247:LYS:NZ	1:C:260:ILE:O	2.42	0.51
1:F:138:ASN:HB3	1:F:141:ARG:HB2	1.93	0.51
2:K:239:ARG:NH1	2:K:243:THR:OG1	2.44	0.51
1:A:487:LEU:HD22	1:A:492:ASP:HB3	1.93	0.50
1:E:6:ASP:N	1:E:6:ASP:OD1	2.43	0.50
2:N:329:LEU:HD23	2:N:341:GLN:HB3	1.94	0.50
1:C:6:ASP:N	1:C:6:ASP:OD1	2.35	0.50
1:C:560:GLU:OE1	1:C:563:LYS:NZ	2.45	0.50
2:M:290:LEU:HD13	2:M:343:ILE:HG22	1.92	0.50
1:B:226:ASP:OD1	1:B:226:ASP:N	2.44	0.50
1:B:549:LEU:HD11	1:C:171:GLU:HG2	1.93	0.50
1:C:545:ASP:OD2	1:D:455:ARG:NH1	2.40	0.50
1:D:43:ARG:NH1	1:D:107:GLU:OE2	2.45	0.50
2:J:230:ARG:NH1	2:J:234:GLU:OE2	2.44	0.50
5:D:601:AGS:O2G	5:D:601:AGS:O2B	2.30	0.50
1:E:351:GLU:OE2	1:E:354:LYS:NZ	2.44	0.50
4:T:12:DG:H2'	4:T:13:DC:C6	2.47	0.50
1:D:32:ALA:HA	1:D:36:LEU:HB2	1.94	0.50
1:D:490:PRO:HA	1:D:493:GLN:HB3	1.93	0.50
1:E:53:LEU:HD13	1:E:111:ILE:HD11	1.93	0.50
1:E:194:GLU:HG2	1:E:202:VAL:HG21	1.94	0.50
1:E:15:SER:HB2	1:E:18:LYS:HB3	1.93	0.50
2:H:179:LEU:HD22	2:H:208:ILE:HD12	1.93	0.50
2:J:346:ILE:HD12	2:J:346:ILE:H	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:15:SER:HB3	1:C:18:LYS:HB3	1.94	0.50
1:D:201:ASN:HD22	1:D:367:SER:HB3	1.76	0.50
1:E:283:GLU:HB3	1:E:323:GLY:HA3	1.93	0.49
2:N:248:ARG:HG2	2:N:363:TYR:HE1	1.77	0.49
2:Q:348:ASP:O	2:Q:352:THR:OG1	2.27	0.49
5:B:601:AGS:O2B	5:B:601:AGS:O2G	2.30	0.49
2:H:329:LEU:HD22	2:H:341:GLN:HB3	1.92	0.49
2:L:281:THR:O	2:L:336:LYS:NZ	2.45	0.49
1:B:211:PRO:HA	1:B:353:SER:HB2	1.95	0.49
1:B:272:GLU:HB3	1:B:311:PHE:HB3	1.94	0.49
2:R:260:ILE:HD11	2:R:298:ASN:HB2	1.94	0.49
1:E:10:GLU:OE2	2:G:280:ARG:NH1	2.39	0.49
1:F:18:LYS:HD2	1:F:74:GLU:HG3	1.94	0.49
2:I:271:GLN:O	2:I:275:SER:OG	2.30	0.49
2:L:186:LYS:NZ	2:L:207:SER:O	2.46	0.49
1:B:146:HIS:HB2	1:B:479:CYS:HA	1.94	0.49
1:B:490:PRO:HB3	1:C:498:ARG:HD3	1.95	0.49
1:C:165:LEU:HD11	1:C:424:VAL:HG21	1.94	0.49
1:E:305:GLU:OE2	1:E:305:GLU:N	2.45	0.49
1:A:514:LEU:HD22	1:A:518:GLU:HB3	1.94	0.49
2:M:259:ASP:OD1	2:M:260:ILE:N	2.46	0.49
2:P:284:PRO:HG3	2:P:336:LYS:HE2	1.94	0.49
1:B:8:ASN:HB2	1:B:25:ASP:HB3	1.95	0.49
1:B:330:LEU:HB3	1:C:324:ALA:HB2	1.95	0.49
2:K:231:LYS:O	2:K:235:SER:OG	2.31	0.49
2:O:294:THR:OG1	2:O:298:ASN:OD1	2.27	0.49
1:A:473:GLU:OE2	1:A:498:ARG:NH2	2.35	0.49
1:D:150:VAL:HG11	1:D:468:PRO:HG3	1.95	0.49
1:F:45:SER:OG	1:F:47:ASN:O	2.26	0.49
1:E:158:SER:OG	7:E:601:ADP:O2B	2.31	0.49
2:O:308:ASN:O	2:Q:357:ASN:ND2	2.42	0.48
2:P:244:SER:O	2:P:248:ARG:NH1	2.36	0.48
2:Q:244:SER:O	2:Q:248:ARG:NH2	2.45	0.48
1:C:53:LEU:HD23	1:C:111:ILE:HD11	1.94	0.48
1:D:431:TYR:O	1:D:443:SER:OG	2.27	0.48
1:E:431:TYR:O	1:E:443:SER:OG	2.27	0.48
1:B:165:LEU:HD22	1:B:184:ILE:HG12	1.94	0.48
2:K:217:ILE:HD12	2:K:217:ILE:H	1.78	0.48
1:A:305:GLU:O	1:A:308:HIS:CE1	2.66	0.48
1:D:233:ASN:HB2	3:S:2:DC:H5'	1.94	0.48
1:E:344:ARG:NH2	1:F:453:GLU:OE1	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:171:GLU:O	1:F:180:ASN:ND2	2.46	0.48
1:B:44:VAL:HG22	1:B:100:VAL:HG22	1.94	0.48
1:C:284:ARG:HG3	1:C:317:PRO:HB2	1.94	0.48
2:G:314:THR:HG23	2:G:329:LEU:HD23	1.96	0.48
2:I:260:ILE:HG22	2:I:264:LYS:HE3	1.94	0.48
2:I:267:ILE:HD13	2:I:306:LEU:HD11	1.94	0.48
1:A:231:ASP:OD1	1:A:232:HIS:N	2.47	0.48
1:C:344:ARG:HH12	1:C:386:GLU:HB2	1.78	0.48
1:A:226:ASP:HB3	1:A:229:ALA:HB3	1.96	0.48
1:C:190:HIS:CD2	1:D:456:LYS:HE3	2.47	0.48
1:D:65:GLU:HG2	2:G:279:LYS:HG3	1.94	0.48
2:P:227:GLU:HG3	2:P:230:ARG:HH21	1.78	0.48
5:A:601:AGS:O2G	5:A:601:AGS:O2B	2.31	0.48
1:B:229:ALA:CB	4:T:12:DG:O3'	2.62	0.48
1:E:393:SER:HB2	1:E:443:SER:HA	1.96	0.48
2:G:346:ILE:O	2:G:350:ASN:ND2	2.47	0.48
1:C:28:GLU:HG2	1:C:30:LYS:HG2	1.96	0.48
1:F:434:LYS:HG3	1:F:472:SER:HA	1.96	0.48
2:H:278:SER:O	2:H:281:THR:OG1	2.29	0.48
2:J:353:LEU:O	2:J:360:LYS:NZ	2.46	0.48
2:O:254:PHE:HB3	2:O:294:THR:HB	1.95	0.48
1:B:173:GLN:HG2	1:B:176:TYR:HE2	1.79	0.48
1:D:151:GLY:HA3	1:D:485:MET:HB2	1.96	0.48
1:A:24:ASP:OD1	2:L:280:ARG:NH2	2.46	0.47
2:P:256:ASP:OD1	2:P:298:ASN:ND2	2.39	0.47
1:C:78:ILE:O	1:C:88:ARG:NH1	2.44	0.47
1:E:348:ILE:HG23	1:E:349:LEU:HG	1.96	0.47
2:G:212:LYS:HA	2:G:381:ASN:HB2	1.96	0.47
2:I:244:SER:O	2:I:248:ARG:NH1	2.38	0.47
2:J:239:ARG:HH21	2:J:243:THR:HG21	1.79	0.47
2:J:259:ASP:OD1	2:J:260:ILE:N	2.47	0.47
1:E:553:ARG:HB3	1:F:173:GLN:HG3	1.97	0.47
2:H:327:LYS:NZ	2:H:331:GLU:OE1	2.41	0.47
2:I:253:GLU:HA	2:I:292:HIS:CD2	2.49	0.47
1:E:378:LEU:HD13	1:E:395:ILE:HD13	1.96	0.47
2:M:244:SER:O	2:M:248:ARG:NH1	2.40	0.47
2:M:364:GLN:NE2	2:M:370:CYS:SG	2.87	0.47
1:F:172:LYS:HG3	1:F:180:ASN:HB3	1.96	0.47
1:B:65:GLU:OE1	1:B:65:GLU:N	2.47	0.47
1:B:290:GLU:HG3	1:B:301:LYS:HD2	1.97	0.47
1:B:553:ARG:NH2	1:C:119:ASN:O	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:278:SER:HB3	2:K:281:THR:HG23	1.96	0.47
1:B:514:LEU:HD22	1:B:518:GLU:HB2	1.96	0.47
1:D:486:ARG:HB2	1:D:514:LEU:HB2	1.97	0.47
1:F:146:HIS:HB3	1:F:461:LEU:HD12	1.97	0.47
1:F:284:ARG:HG2	1:F:317:PRO:HB2	1.97	0.47
2:R:259:ASP:OD1	2:R:260:ILE:N	2.47	0.47
1:D:21:ILE:HG12	1:D:100:VAL:HG21	1.96	0.47
1:F:295:ASP:OD1	1:F:296:GLU:N	2.48	0.47
2:J:151:LYS:HA	2:J:156:GLN:HB3	1.97	0.47
1:E:41:TYR:OH	1:E:112:TYR:OH	2.25	0.47
1:E:196:ALA:HA	1:E:539:ILE:HG22	1.97	0.47
2:I:269:LYS:NZ	2:I:394:VAL:O	2.47	0.47
1:D:112:TYR:HB3	1:D:136:PRO:HD2	1.96	0.46
1:E:469:SER:OG	1:E:492:ASP:OD1	2.25	0.46
2:H:259:ASP:OD1	2:H:260:ILE:N	2.48	0.46
2:I:375:SER:HA	2:I:379:GLN:HE21	1.79	0.46
2:P:290:LEU:HB2	2:P:343:ILE:HB	1.96	0.46
1:A:287:LYS:H	1:A:287:LYS:HD2	1.81	0.46
1:B:280:ARG:HA	1:B:283:GLU:HG3	1.97	0.46
1:E:422:LEU:HD21	1:E:462:LEU:HD12	1.96	0.46
2:L:217:ILE:HD12	2:L:217:ILE:H	1.80	0.46
2:Q:275:SER:HB3	2:Q:287:PRO:HD3	1.97	0.46
2:K:154:ASP:N	2:K:154:ASP:OD1	2.45	0.46
1:C:8:ASN:HD22	1:C:25:ASP:HB2	1.81	0.46
1:B:197:PHE:O	1:B:200:SER:OG	2.33	0.46
1:D:20:LYS:HE2	1:D:74:GLU:HG3	1.97	0.46
1:E:210:LEU:HD11	1:E:395:ILE:HD11	1.98	0.46
2:I:268:TYR:OH	2:I:309:GLU:OE1	2.27	0.46
2:M:389:ASP:OD1	2:M:389:ASP:N	2.49	0.46
1:B:229:ALA:CB	4:T:12:DG:C3'	2.93	0.46
2:G:237:ILE:HD12	2:G:237:ILE:HG23	1.75	0.46
2:J:325:THR:HG22	2:J:327:LYS:HG2	1.97	0.46
2:J:359:ARG:HD2	2:J:360:LYS:H	1.81	0.46
2:P:227:GLU:O	2:P:231:LYS:HG3	2.16	0.46
1:A:465:SER:HB3	1:A:471:ILE:HD11	1.97	0.46
1:B:286:ASN:ND2	1:B:290:GLU:OE1	2.42	0.46
1:D:562:ASP:N	1:D:562:ASP:OD1	2.49	0.46
2:O:239:ARG:HD3	2:O:273:ASN:HB3	1.98	0.46
1:A:502:ASP:OD1	1:A:503:THR:N	2.43	0.45
1:E:94:ALA:HB1	1:E:98:LYS:HG3	1.98	0.45
1:F:238:PHE:HA	1:F:277:ILE:HD11	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:254:PHE:HZ	2:G:260:ILE:HD13	1.80	0.45
1:B:177:LYS:HA	1:B:177:LYS:HD3	1.80	0.45
1:F:225:LEU:HD21	1:F:235:ARG:HG3	1.98	0.45
2:M:315:ASP:OD1	2:M:315:ASP:N	2.49	0.45
1:B:189:ILE:HG13	1:B:380:VAL:HG23	1.97	0.45
1:B:283:GLU:O	1:B:326:ASN:ND2	2.39	0.45
1:C:467:ARG:HB2	1:C:470:GLU:HG2	1.97	0.45
2:G:265:ASP:OD1	2:G:265:ASP:N	2.50	0.45
2:J:210:LYS:HG3	2:J:212:LYS:HG3	1.97	0.45
1:D:82:LYS:HB2	1:D:87:TYR:HE1	1.80	0.45
2:N:270:ILE:HG12	2:N:394:VAL:HG21	1.98	0.45
1:E:381:SER:HB3	1:F:456:LYS:HD2	1.98	0.45
2:I:264:LYS:HE2	2:I:305:GLN:HB2	1.98	0.45
2:H:237:ILE:HG13	2:H:393:ILE:HG22	1.98	0.45
2:J:324:PHE:HE2	2:J:351:GLU:HB3	1.81	0.45
1:F:293:TRP:HB2	1:F:300:PHE:CE1	2.52	0.45
2:G:154:ASP:OD1	2:G:154:ASP:N	2.48	0.45
2:J:264:LYS:NZ	2:J:309:GLU:OE2	2.43	0.45
2:O:322:SER:OG	2:O:323:VAL:O	2.35	0.45
1:C:120:ASP:OD1	1:C:120:ASP:N	2.50	0.45
2:H:200:LYS:HD2	2:H:200:LYS:HA	1.66	0.45
2:L:329:LEU:HD22	2:L:341:GLN:HB3	1.99	0.45
1:D:422:LEU:HD11	1:D:462:LEU:HB2	1.99	0.45
2:L:385:LYS:HE2	2:L:385:LYS:HB2	1.86	0.45
2:M:238:ARG:HB2	2:M:241:VAL:HG22	1.99	0.45
2:R:322:SER:OG	2:R:323:VAL:O	2.34	0.45
1:C:277:ILE:HG23	1:C:329:LEU:HD13	1.99	0.45
1:E:146:HIS:HB2	1:E:479:CYS:HA	1.99	0.45
2:G:216:ASN:HD22	2:G:219:PHE:HE2	1.65	0.45
2:Q:335:ASN:HD22	2:Q:338:ILE:HD12	1.82	0.45
1:A:23:VAL:HB	1:A:71:TYR:HB3	1.99	0.44
2:J:359:ARG:HD2	2:J:360:LYS:N	2.32	0.44
2:K:162:GLN:HA	2:K:165:LYS:HB2	1.99	0.44
1:C:154:GLY:HA3	1:D:145:LYS:HE2	1.98	0.44
2:H:348:ASP:N	2:H:348:ASP:OD1	2.50	0.44
2:I:348:ASP:O	2:I:352:THR:OG1	2.29	0.44
2:L:159:GLU:HA	2:L:162:GLN:HG2	1.99	0.44
1:D:234:GLN:CG	3:S:2:DC:OP2	2.64	0.44
2:M:329:LEU:HD22	2:M:341:GLN:HB3	1.98	0.44
1:F:76:SER:HA	1:F:77:PRO:HD3	1.86	0.44
2:J:162:GLN:OE1	2:J:166:ASN:ND2	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:346:ILE:HD12	2:N:346:ILE:HA	1.85	0.44
1:C:567:GLN:HE22	1:D:408:LYS:HE2	1.81	0.44
1:E:211:PRO:HD3	1:E:356:VAL:HG11	2.00	0.44
1:E:554:LYS:HB3	1:E:554:LYS:HE3	1.85	0.44
1:F:46:ASP:OD1	1:F:46:ASP:N	2.48	0.44
2:G:190:ILE:HG12	2:G:199:ILE:HG13	2.00	0.44
2:I:154:ASP:OD1	2:I:154:ASP:N	2.50	0.44
2:M:303:LYS:NZ	2:M:315:ASP:OD2	2.34	0.44
3:S:4:DT:H2"	3:S:5:DT:H5'	1.99	0.44
1:C:232:HIS:CE1	3:S:4:DT:H4'	2.52	0.44
1:E:284:ARG:NH1	4:T:9:DA:OP1	2.47	0.44
1:F:286:ASN:OD1	1:F:287:LYS:N	2.47	0.44
1:A:396:SER:OG	1:A:425:TYR:OH	2.23	0.44
2:P:265:ASP:OD2	2:R:359:ARG:NH2	2.47	0.44
2:R:270:ILE:HA	2:R:394:VAL:HG21	2.00	0.44
2:R:274:TRP:HE1	2:R:394:VAL:HG23	1.82	0.44
1:B:184:ILE:HB	1:B:375:ILE:HD13	2.00	0.44
1:D:172:LYS:HG2	1:D:180:ASN:HB3	1.99	0.44
1:D:487:LEU:HD13	1:D:492:ASP:HB3	1.98	0.44
1:E:237:VAL:HA	1:E:240:GLN:HG2	2.00	0.44
2:I:223:GLU:HB3	2:I:227:GLU:HB3	1.99	0.44
2:J:179:LEU:HD22	2:J:208:ILE:HD12	2.00	0.44
2:N:275:SER:HB3	2:N:287:PRO:HD3	1.99	0.44
5:C:601:AGS:S1G	1:D:456:LYS:HE2	2.57	0.44
2:J:303:LYS:NZ	2:J:344:ASN:OD1	2.50	0.44
2:J:348:ASP:N	2:J:348:ASP:OD1	2.51	0.44
2:N:294:THR:OG1	2:N:298:ASN:ND2	2.51	0.44
1:E:25:ASP:O	2:I:283:ARG:NH2	2.43	0.43
1:F:261:SER:OG	1:F:262:PHE:N	2.50	0.43
1:B:165:LEU:HD11	1:B:424:VAL:HG21	2.00	0.43
1:B:284:ARG:HE	1:B:284:ARG:HB3	1.57	0.43
1:B:284:ARG:HG3	1:B:317:PRO:HB2	2.01	0.43
1:C:79:GLY:HA2	1:C:89:GLY:H	1.83	0.43
1:C:463:LEU:HD23	1:C:476:PHE:CE1	2.53	0.43
1:D:489:ASN:HB3	1:D:492:ASP:HB2	2.00	0.43
1:F:93:LEU:O	2:I:242:ASN:ND2	2.44	0.43
1:F:294:SER:OG	1:F:316:THR:O	2.32	0.43
2:L:314:THR:HG22	2:L:338:ILE:HG21	2.00	0.43
1:D:177:LYS:HE2	1:D:177:LYS:HB2	1.92	0.43
1:F:147:ILE:HB	1:F:462:LEU:HG	2.00	0.43
2:G:386:ASP:N	2:G:386:ASP:OD1	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:152:SER:OG	2:I:153:PHE:N	2.50	0.43
2:P:387:PHE:HA	2:P:390:ILE:HD12	2.00	0.43
2:R:236:PHE:HB3	2:R:382:ILE:HD11	2.00	0.43
2:L:362:VAL:HG21	2:L:373:ILE:HG21	1.99	0.43
2:P:329:LEU:HD22	2:P:341:GLN:HB3	1.99	0.43
2:Q:274:TRP:HE1	2:Q:394:VAL:HG13	1.82	0.43
1:A:359:LYS:HD2	1:F:565:ILE:HG21	2.00	0.43
1:F:183:HIS:CD2	1:F:419:ILE:HG23	2.54	0.43
1:A:219:GLU:OE2	1:A:393:SER:OG	2.35	0.43
1:F:146:HIS:HB2	1:F:479:CYS:HA	2.00	0.43
2:L:158:LYS:O	2:L:162:GLN:NE2	2.52	0.43
2:Q:284:PRO:HG3	2:Q:336:LYS:HE3	1.98	0.43
1:A:295:ASP:OD1	1:A:296:GLU:N	2.47	0.43
1:D:165:LEU:HD22	1:D:184:ILE:HD13	2.01	0.43
2:G:277:LEU:HD11	2:G:339:HIS:HA	2.00	0.43
2:K:176:GLU:OE1	2:K:176:GLU:N	2.46	0.43
1:C:567:GLN:NE2	1:D:408:LYS:HE2	2.33	0.43
1:D:189:ILE:HG22	1:D:380:VAL:HG23	2.01	0.43
1:D:233:ASN:HB3	1:D:325:LEU:HD21	2.00	0.43
2:H:231:LYS:O	2:H:235:SER:OG	2.37	0.43
1:A:226:ASP:OD1	1:A:227:THR:N	2.52	0.43
2:N:356:ILE:HG22	2:N:360:LYS:HZ2	1.84	0.43
1:A:210:LEU:HD13	1:A:394:LEU:HD23	2.00	0.43
1:A:238:PHE:HA	1:A:277:ILE:HD11	2.00	0.43
1:E:163:LYS:HA	1:E:163:LYS:HD2	1.76	0.43
2:H:239:ARG:HD2	2:H:239:ARG:HA	1.80	0.43
2:K:329:LEU:HD22	2:K:341:GLN:HB3	1.99	0.43
2:L:156:GLN:O	2:L:160:THR:OG1	2.30	0.43
2:L:271:GLN:HE22	2:L:277:LEU:HD11	1.84	0.43
2:P:247:ALA:HB3	2:P:360:LYS:HG2	2.00	0.43
2:R:364:GLN:NE2	2:R:371:LEU:H	2.16	0.43
2:R:370:CYS:SG	2:R:381:ASN:ND2	2.92	0.43
1:B:338:SER:O	1:B:338:SER:OG	2.29	0.42
1:E:301:LYS:HB3	1:E:301:LYS:HE2	1.85	0.42
1:B:163:LYS:HD2	1:B:163:LYS:HA	1.88	0.42
2:H:240:SER:OG	2:H:241:VAL:N	2.52	0.42
2:I:300:TYR:O	2:I:304:ASN:ND2	2.48	0.42
2:R:356:ILE:HD12	2:R:356:ILE:H	1.84	0.42
1:E:370:LYS:HE3	1:E:370:LYS:HB3	1.80	0.42
2:R:315:ASP:OD1	2:R:315:ASP:N	2.52	0.42
1:B:165:LEU:HD13	1:B:184:ILE:HG21	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:44:VAL:HB	1:C:52:LEU:HB2	2.00	0.42
2:H:263:VAL:HA	2:H:387:PHE:CE1	2.54	0.42
2:Q:322:SER:OG	2:Q:323:VAL:O	2.37	0.42
1:C:240:GLN:OE1	1:C:276:TYR:OH	2.38	0.42
1:C:514:LEU:HD22	1:C:518:GLU:HB3	2.01	0.42
1:D:425:TYR:HB2	1:D:463:LEU:HD12	2.01	0.42
2:I:200:LYS:HA	2:I:200:LYS:HD2	1.77	0.42
2:J:212:LYS:HA	2:J:381:ASN:HB2	2.00	0.42
2:J:225:ARG:HH12	2:J:392:GLU:HG3	1.85	0.42
2:K:362:VAL:HG11	2:K:373:ILE:HD13	2.01	0.42
1:B:294:SER:HA	1:B:299:ASN:HA	2.01	0.42
1:C:32:ALA:HA	1:C:36:LEU:HB2	2.01	0.42
1:C:343:LYS:HA	1:C:343:LYS:HD2	1.80	0.42
1:E:11:VAL:HG22	1:E:21:ILE:HG12	2.01	0.42
1:F:303:ASP:OD1	1:F:304:ASN:N	2.52	0.42
1:F:303:ASP:O	1:F:307:ALA:N	2.53	0.42
2:G:261:LYS:HA	2:G:261:LYS:HD2	1.79	0.42
2:K:184:PHE:HE1	2:K:218:TRP:HD1	1.68	0.42
2:K:306:LEU:HD22	2:K:311:LEU:HD23	2.00	0.42
3:S:4:DT:H2"	3:S:5:DT:C5'	2.49	0.42
1:B:299:ASN:OD1	1:B:299:ASN:N	2.52	0.42
1:B:561:PHE:HZ	1:C:366:ILE:HD11	1.84	0.42
1:C:465:SER:OG	1:C:470:GLU:OE2	2.35	0.42
1:D:274:ILE:HD13	1:D:274:ILE:HA	1.85	0.42
1:D:396:SER:OG	1:D:425:TYR:OH	2.29	0.42
1:E:184:ILE:HB	1:E:375:ILE:HD13	2.01	0.42
2:J:271:GLN:O	2:J:275:SER:OG	2.28	0.42
1:F:23:VAL:HB	1:F:71:TYR:HB3	2.02	0.42
2:K:260:ILE:HA	2:K:263:VAL:HG12	2.01	0.42
2:K:346:ILE:H	2:K:346:ILE:HD12	1.84	0.42
2:P:356:ILE:HB	2:P:360:LYS:HD3	2.02	0.42
1:A:226:ASP:H	1:A:230:ASN:HD22	1.67	0.42
1:D:45:SER:HB3	1:D:51:ALA:HA	2.02	0.42
1:E:245:ASN:HD21	1:E:272:GLU:HB2	1.85	0.42
2:K:158:LYS:HE3	2:K:158:LYS:HB3	1.92	0.42
2:K:315:ASP:OD1	2:K:315:ASP:N	2.47	0.42
2:L:198:ARG:HD2	2:L:198:ARG:HA	1.87	0.42
2:P:282:ASP:OD1	2:P:282:ASP:N	2.46	0.42
2:R:254:PHE:HZ	2:R:260:ILE:HD13	1.85	0.42
1:B:410:LYS:HA	1:B:410:LYS:HD3	1.84	0.41
1:C:204:ASN:OD1	1:C:204:ASN:N	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:202:VAL:HG22	1:E:377:ILE:HD12	2.01	0.41
1:E:520:LEU:HB2	1:E:531:ILE:HD13	2.01	0.41
2:H:171:GLU:HG2	2:H:174:GLU:HB2	2.01	0.41
2:H:277:LEU:HD11	2:H:339:HIS:HA	2.02	0.41
1:B:152:SER:O	1:B:155:SER:OG	2.30	0.41
1:B:219:GLU:OE2	1:B:397:ARG:NE	2.53	0.41
1:C:215:LEU:HD13	1:C:219:GLU:HB3	2.00	0.41
1:D:56:ILE:HG23	1:D:73:ILE:HG23	2.02	0.41
2:H:367:THR:O	2:H:383:GLN:NE2	2.52	0.41
1:A:280:ARG:NH1	1:A:283:GLU:OE2	2.53	0.41
1:A:407:LYS:HA	1:A:407:LYS:HD2	1.89	0.41
1:E:159:HIS:CE1	1:E:541:PRO:HD2	2.55	0.41
2:J:239:ARG:HD2	2:J:239:ARG:HA	1.62	0.41
1:B:152:SER:OG	1:B:153:THR:N	2.52	0.41
1:D:545:ASP:OD1	1:E:455:ARG:NH1	2.53	0.41
2:G:274:TRP:HB2	2:G:287:PRO:HG3	2.03	0.41
2:J:201:LYS:HE2	2:J:201:LYS:HB2	1.82	0.41
2:K:326:PRO:O	2:K:330:ILE:HG12	2.20	0.41
2:K:355:SER:O	2:K:355:SER:OG	2.32	0.41
1:A:165:LEU:HD11	1:A:424:VAL:HG21	2.02	0.41
1:A:285:LYS:HE2	1:A:285:LYS:HB2	1.86	0.41
1:B:130:ASN:HB3	1:B:133:VAL:HG12	2.03	0.41
1:E:553:ARG:O	1:F:176:TYR:OH	2.29	0.41
1:F:15:SER:HB2	1:F:18:LYS:HB3	2.02	0.41
1:F:280:ARG:NH2	1:F:325:LEU:HD12	2.36	0.41
2:G:225:ARG:NH2	2:G:389:ASP:OD1	2.54	0.41
2:L:340:PHE:HE2	2:L:342:PHE:HD2	1.68	0.41
2:P:236:PHE:HB2	2:P:237:ILE:HD12	2.03	0.41
2:R:329:LEU:HD22	2:R:341:GLN:HB3	2.03	0.41
1:A:177:LYS:HA	1:A:177:LYS:HD3	1.80	0.41
1:C:493:GLN:HE21	1:C:493:GLN:HB3	1.75	0.41
2:L:168:PHE:HZ	2:L:205:VAL:HG13	1.84	0.41
1:F:400:PHE:HA	1:F:459:VAL:HG21	2.02	0.41
2:G:184:PHE:HE1	2:G:218:TRP:HD1	1.68	0.41
2:M:311:LEU:HD12	2:M:311:LEU:HA	1.95	0.41
2:Q:267:ILE:HD13	2:Q:306:LEU:HD11	2.01	0.41
1:D:18:LYS:HB3	1:D:18:LYS:HE3	1.86	0.41
2:Q:373:ILE:HA	2:Q:373:ILE:HD13	1.82	0.41
2:R:286:SER:HB2	2:R:341:GLN:HE22	1.86	0.41
1:B:183:HIS:CD2	1:B:419:ILE:HB	2.56	0.41
1:C:23:VAL:HB	1:C:71:TYR:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:93:LEU:O	2:J:242:ASN:ND2	2.50	0.41
1:C:410:LYS:HA	1:C:410:LYS:HD2	1.87	0.41
1:C:468:PRO:HA	1:C:476:PHE:HE2	1.86	0.41
1:D:215:LEU:HD11	1:D:394:LEU:HD11	2.01	0.41
1:D:283:GLU:HG3	1:D:323:GLY:HA3	2.02	0.41
1:E:41:TYR:HE2	1:E:127:LEU:HD21	1.84	0.41
1:E:189:ILE:HD11	1:E:431:TYR:OH	2.21	0.41
1:F:150:VAL:HB	1:F:468:PRO:HG3	2.02	0.41
2:G:237:ILE:HG21	2:G:393:ILE:O	2.21	0.41
2:H:366:TYR:CE1	2:H:383:GLN:HG3	2.56	0.41
2:I:185:ARG:HE	2:I:214:LEU:HB3	1.84	0.41
2:R:345:ASP:N	2:R:345:ASP:OD1	2.54	0.41
1:A:483:ILE:HG12	1:A:521:ILE:HG12	2.03	0.41
1:E:287:LYS:HE2	1:E:287:LYS:HB2	1.85	0.41
2:R:311:LEU:HD12	2:R:311:LEU:HA	1.98	0.41
1:C:468:PRO:HA	1:C:476:PHE:CE2	2.56	0.40
1:E:62:GLU:HB2	1:E:70:LYS:HB3	2.02	0.40
2:G:325:THR:O	2:G:325:THR:OG1	2.38	0.40
2:I:186:LYS:HA	2:I:186:LYS:HD2	1.87	0.40
1:A:493:GLN:NE2	1:A:512:PRO:HG3	2.36	0.40
1:B:285:LYS:HA	1:B:291:HIS:HA	2.01	0.40
1:D:204:ASN:HB3	1:D:379:ASP:HB2	2.03	0.40
1:F:437:LEU:HD23	1:F:437:LEU:HA	1.91	0.40
2:G:253:GLU:OE2	2:G:369:ASN:ND2	2.54	0.40
2:I:195:LYS:H	2:I:195:LYS:HG3	1.68	0.40
2:P:311:LEU:HD12	2:P:311:LEU:HA	1.96	0.40
1:B:422:LEU:HD21	1:B:462:LEU:HD12	2.04	0.40
1:D:30:LYS:HE3	1:D:30:LYS:HB3	1.96	0.40
2:K:384:VAL:HG21	2:K:390:ILE:HG13	2.02	0.40
2:L:311:LEU:HD12	2:L:311:LEU:HA	1.90	0.40
2:R:284:PRO:HG3	2:R:336:LYS:HE2	2.02	0.40
1:B:270:ILE:O	1:B:274:ILE:HG12	2.20	0.40
2:J:194:LYS:HD2	2:J:194:LYS:HA	1.88	0.40
2:K:268:TYR:O	2:K:272:SER:OG	2.32	0.40
2:N:225:ARG:NH2	2:N:389:ASP:OD1	2.54	0.40
2:P:238:ARG:HE	2:P:238:ARG:HB2	1.77	0.40
2:Q:226:LYS:HB2	2:Q:226:LYS:HE2	1.86	0.40
2:Q:242:ASN:OD1	2:Q:248:ARG:NE	2.54	0.40
2:K:300:TYR:O	2:K:304:ASN:ND2	2.54	0.40
2:M:367:THR:O	2:M:383:GLN:NE2	2.54	0.40

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	565/571 (99%)	558 (99%)	7 (1%)	0	100	100
1	B	565/571 (99%)	545 (96%)	19 (3%)	1 (0%)	47	76
1	C	565/571 (99%)	550 (97%)	15 (3%)	0	100	100
1	D	559/571 (98%)	546 (98%)	13 (2%)	0	100	100
1	E	565/571 (99%)	545 (96%)	20 (4%)	0	100	100
1	F	565/571 (99%)	552 (98%)	13 (2%)	0	100	100
2	G	242/394 (61%)	235 (97%)	7 (3%)	0	100	100
2	H	242/394 (61%)	235 (97%)	7 (3%)	0	100	100
2	I	242/394 (61%)	237 (98%)	5 (2%)	0	100	100
2	J	242/394 (61%)	235 (97%)	7 (3%)	0	100	100
2	K	242/394 (61%)	236 (98%)	6 (2%)	0	100	100
2	L	242/394 (61%)	238 (98%)	4 (2%)	0	100	100
2	M	169/394 (43%)	163 (96%)	6 (4%)	0	100	100
2	N	169/394 (43%)	168 (99%)	1 (1%)	0	100	100
2	O	169/394 (43%)	165 (98%)	4 (2%)	0	100	100
2	P	169/394 (43%)	164 (97%)	5 (3%)	0	100	100
2	Q	168/394 (43%)	166 (99%)	2 (1%)	0	100	100
2	R	169/394 (43%)	164 (97%)	5 (3%)	0	100	100
All	All	5849/8154 (72%)	5702 (98%)	146 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	287	LYS

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	516/520 (99%)	505 (98%)	11 (2%)	53	82
1	B	516/520 (99%)	499 (97%)	17 (3%)	38	70
1	C	516/520 (99%)	501 (97%)	15 (3%)	42	74
1	D	513/520 (99%)	500 (98%)	13 (2%)	47	78
1	E	516/520 (99%)	499 (97%)	17 (3%)	38	70
1	F	516/520 (99%)	503 (98%)	13 (2%)	47	78
2	G	234/373 (63%)	226 (97%)	8 (3%)	37	69
2	H	234/373 (63%)	221 (94%)	13 (6%)	21	49
2	I	234/373 (63%)	217 (93%)	17 (7%)	14	37
2	J	234/373 (63%)	217 (93%)	17 (7%)	14	37
2	K	234/373 (63%)	225 (96%)	9 (4%)	33	65
2	L	234/373 (63%)	219 (94%)	15 (6%)	17	44
2	M	163/373 (44%)	151 (93%)	12 (7%)	13	36
2	N	163/373 (44%)	157 (96%)	6 (4%)	34	66
2	O	163/373 (44%)	158 (97%)	5 (3%)	40	72
2	P	163/373 (44%)	153 (94%)	10 (6%)	18	46
2	Q	162/373 (43%)	151 (93%)	11 (7%)	16	40
2	R	163/373 (44%)	153 (94%)	10 (6%)	18	46
All	All	5474/7596 (72%)	5255 (96%)	219 (4%)	35	64

All (219) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	ASP
1	A	18	LYS
1	A	71	TYR
1	A	141	ARG
1	A	195	ASN
1	A	232	HIS

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Mol	Chain	Res	Type
1	A	306	ASN
1	A	353	SER
1	A	368	TYR
1	A	527	SER
1	A	566	GLU
1	B	71	TYR
1	B	128	SER
1	B	152	SER
1	B	228	GLU
1	B	236	ASN
1	B	287	LYS
1	B	288	ASP
1	B	294	SER
1	B	296	GLU
1	B	297	GLU
1	B	299	ASN
1	B	321	SER
1	B	358	PHE
1	B	482	PHE
1	B	486	ARG
1	B	502	ASP
1	B	559	SER
1	C	66	SER
1	C	71	TYR
1	C	117	ASP
1	C	120	ASP
1	C	191	SER
1	C	278	ASN
1	C	318	ASP
1	C	358	PHE
1	C	368	TYR
1	C	411	ARG
1	C	434	LYS
1	C	502	ASP
1	C	527	SER
1	C	554	LYS
1	C	559	SER
1	D	65	GLU
1	D	71	TYR
1	D	195	ASN
1	D	235	ARG
1	D	245	ASN

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Mol	Chain	Res	Type
1	D	318	ASP
1	D	328	LYS
1	D	358	PHE
1	D	431	TYR
1	D	533	LYS
1	D	545	ASP
1	D	555	GLU
1	D	562	ASP
1	E	15	SER
1	E	27	GLU
1	E	46	ASP
1	E	49	ASP
1	E	60	SER
1	E	71	TYR
1	E	85	LYS
1	E	88	ARG
1	E	106	ASP
1	E	128	SER
1	E	368	TYR
1	E	389	SER
1	E	418	ASP
1	E	440	TYR
1	E	491	ASP
1	E	524	ASP
1	E	533	LYS
1	F	5	ASN
1	F	6	ASP
1	F	15	SER
1	F	45	SER
1	F	71	TYR
1	F	158	SER
1	F	235	ARG
1	F	305	GLU
1	F	370	LYS
1	F	406	SER
1	F	426	GLU
1	F	430	LYS
1	F	509	ASN
2	G	165	LYS
2	G	198	ARG
2	G	219	PHE
2	G	236	PHE

Continued from previous page...

Mol	Chain	Res	Type
2	G	296	ASP
2	G	357	ASN
2	G	369	ASN
2	G	387	PHE
2	H	158	LYS
2	H	197	ARG
2	H	206	GLU
2	H	219	PHE
2	H	231	LYS
2	H	236	PHE
2	H	257	LYS
2	H	269	LYS
2	H	292	HIS
2	H	327	LYS
2	H	345	ASP
2	H	351	GLU
2	H	391	LYS
2	I	153	PHE
2	I	167	HIS
2	I	184	PHE
2	I	188	TYR
2	I	195	LYS
2	I	219	PHE
2	I	230	ARG
2	I	254	PHE
2	I	269	LYS
2	I	271	GLN
2	I	292	HIS
2	I	307	PHE
2	I	360	LYS
2	I	370	CYS
2	I	377	LEU
2	I	381	ASN
2	I	387	PHE
2	J	158	LYS
2	J	162	GLN
2	J	184	PHE
2	J	185	ARG
2	J	196	ASP
2	J	198	ARG
2	J	207	SER
2	J	236	PHE

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Mol	Chain	Res	Type
2	J	254	PHE
2	J	273	ASN
2	J	305	GLN
2	J	348	ASP
2	J	369	ASN
2	J	377	LEU
2	J	381	ASN
2	J	385	LYS
2	J	386	ASP
2	K	153	PHE
2	K	195	LYS
2	K	254	PHE
2	K	265	ASP
2	K	282	ASP
2	K	298	ASN
2	K	359	ARG
2	K	370	CYS
2	K	381	ASN
2	L	153	PHE
2	L	156	GLN
2	L	186	LYS
2	L	188	TYR
2	L	191	SER
2	L	225	ARG
2	L	236	PHE
2	L	244	SER
2	L	254	PHE
2	L	256	ASP
2	L	273	ASN
2	L	320	LYS
2	L	325	THR
2	L	354	ASN
2	L	381	ASN
2	M	228	TYR
2	M	239	ARG
2	M	254	PHE
2	M	255	GLN
2	M	257	LYS
2	M	271	GLN
2	M	286	SER
2	M	322	SER
2	M	360	LYS

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Mol	Chain	Res	Type
2	M	383	GLN
2	M	386	ASP
2	M	389	ASP
2	N	238	ARG
2	N	254	PHE
2	N	271	GLN
2	N	342	PHE
2	N	369	ASN
2	N	370	CYS
2	O	254	PHE
2	O	265	ASP
2	O	271	GLN
2	O	342	PHE
2	O	386	ASP
2	P	238	ARG
2	P	254	PHE
2	P	265	ASP
2	P	269	LYS
2	P	279	LYS
2	P	289	LEU
2	P	341	GLN
2	P	342	PHE
2	P	351	GLU
2	P	383	GLN
2	Q	226	LYS
2	Q	231	LYS
2	Q	239	ARG
2	Q	254	PHE
2	Q	271	GLN
2	Q	342	PHE
2	Q	345	ASP
2	Q	347	ASP
2	Q	354	ASN
2	Q	357	ASN
2	Q	375	SER
2	R	226	LYS
2	R	228	TYR
2	R	254	PHE
2	R	257	LYS
2	R	271	GLN
2	R	296	ASP
2	R	322	SER

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Mol	Chain	Res	Type
2	R	342	PHE
2	R	347	ASP
2	R	391	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	567	GLN
1	D	234	GLN
1	E	245	ASN
1	E	493	GLN
2	J	166	ASN
2	K	255	GLN
2	M	364	GLN
2	N	381	ASN
2	P	381	ASN
2	R	364	GLN
2	R	381	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 12 ligands modelled in this entry, 6 are monoatomic - leaving 6 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	#$|Z| > 2$
7	ADP	F	601	6	24,29,29	0.96	1 (4%)	29,45,45	1.28	4 (13%)
7	ADP	E	601	6,1	24,29,29	0.92	1 (4%)	29,45,45	1.34	5 (17%)
5	AGS	D	601	6	26,33,33	0.73	1 (3%)	26,52,52	1.05	2 (7%)
5	AGS	A	601	6	26,33,33	0.73	1 (3%)	26,52,52	1.02	2 (7%)
5	AGS	C	601	6	26,33,33	0.71	0	26,52,52	1.13	2 (7%)
5	AGS	B	601	6,1	26,33,33	0.75	1 (3%)	26,52,52	1.17	3 (11%)

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
7	ADP	F	601	6	-	5/12/32/32	0/3/3/3
7	ADP	E	601	6,1	-	2/12/32/32	0/3/3/3
5	AGS	D	601	6	-	3/17/38/38	0/3/3/3
5	AGS	A	601	6	-	2/17/38/38	0/3/3/3
5	AGS	C	601	6	-	5/17/38/38	0/3/3/3
5	AGS	B	601	6,1	-	4/17/38/38	0/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	E	601	ADP	C5-C4	2.44	1.47	1.40
7	F	601	ADP	C5-C4	2.42	1.47	1.40
5	B	601	AGS	PG-S1G	2.11	1.95	1.90
5	D	601	AGS	PG-S1G	2.09	1.95	1.90
5	A	601	AGS	PG-S1G	2.07	1.95	1.90

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	601	AGS	PA-O3A-PB	-4.04	118.96	132.83
5	C	601	AGS	PA-O3A-PB	-3.61	120.43	132.83
5	D	601	AGS	PA-O3A-PB	-3.42	121.08	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	601	AGS	PA-O3A-PB	-3.32	121.42	132.83
7	E	601	ADP	C3'-C2'-C1'	3.18	105.76	100.98
7	F	601	ADP	C3'-C2'-C1'	3.14	105.70	100.98
7	E	601	ADP	N3-C2-N1	-3.09	123.85	128.68
7	F	601	ADP	N3-C2-N1	-2.91	124.13	128.68
7	F	601	ADP	C4-C5-N7	-2.41	106.89	109.40
7	E	601	ADP	PA-O3A-PB	-2.38	124.67	132.83
5	C	601	AGS	C5-C6-N6	2.32	123.87	120.35
5	D	601	AGS	C5-C6-N6	2.28	123.82	120.35
5	B	601	AGS	C5-C6-N6	2.25	123.78	120.35
5	A	601	AGS	C5-C6-N6	2.23	123.74	120.35
7	F	601	ADP	PA-O3A-PB	-2.17	125.38	132.83
7	E	601	ADP	C4-C5-N7	-2.11	107.20	109.40
5	B	601	AGS	C3'-C2'-C1'	2.04	104.06	100.98
7	E	601	ADP	O3B-PB-O2B	2.04	115.43	107.64

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	601	AGS	PB-O3B-PG-O2G
5	C	601	AGS	PB-O3B-PG-O3G
5	C	601	AGS	O4'-C4'-C5'-O5'
5	D	601	AGS	O4'-C4'-C5'-O5'
7	F	601	ADP	C5'-O5'-PA-O1A
7	F	601	ADP	C5'-O5'-PA-O3A
7	F	601	ADP	O4'-C4'-C5'-O5'
5	A	601	AGS	O4'-C4'-C5'-O5'
5	C	601	AGS	C3'-C4'-C5'-O5'
5	D	601	AGS	C3'-C4'-C5'-O5'
7	F	601	ADP	C3'-C4'-C5'-O5'
5	A	601	AGS	C3'-C4'-C5'-O5'
5	B	601	AGS	O4'-C4'-C5'-O5'
5	B	601	AGS	C3'-C4'-C5'-O5'
7	E	601	ADP	O4'-C4'-C5'-O5'
7	E	601	ADP	C3'-C4'-C5'-O5'
5	D	601	AGS	PG-O3B-PB-O2B
5	B	601	AGS	PG-O3B-PB-O2B
5	C	601	AGS	PG-O3B-PB-O2B
5	B	601	AGS	PB-O3B-PG-O3G
7	F	601	ADP	C5'-O5'-PA-O2A

There are no ring outliers.

5 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	E	601	ADP	1	0
5	D	601	AGS	1	0
5	A	601	AGS	2	0
5	C	601	AGS	2	0
5	B	601	AGS	1	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 ADP F 601

Bond lengths

Bond angles

Torsions

Rings

Ligand ADP E 601

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS D 601

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS A 601

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS C 601

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS B 601

Bond lengths

Bond angles

Torsions

Rings
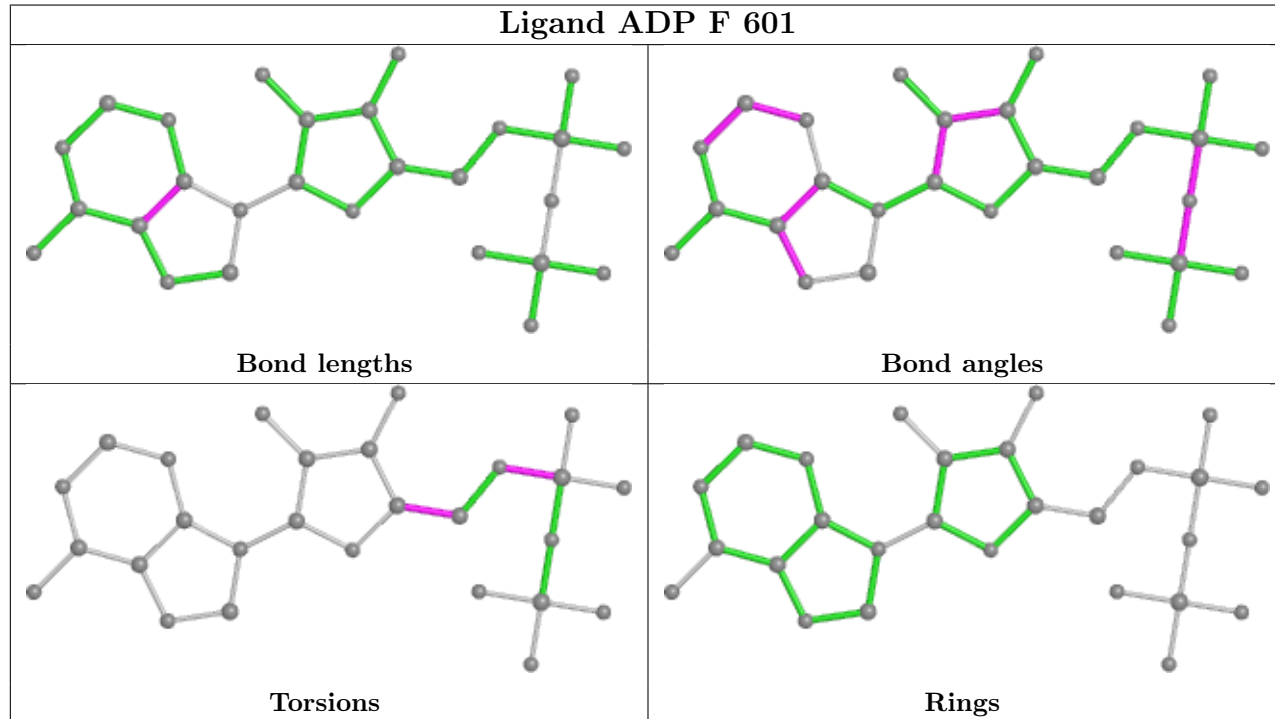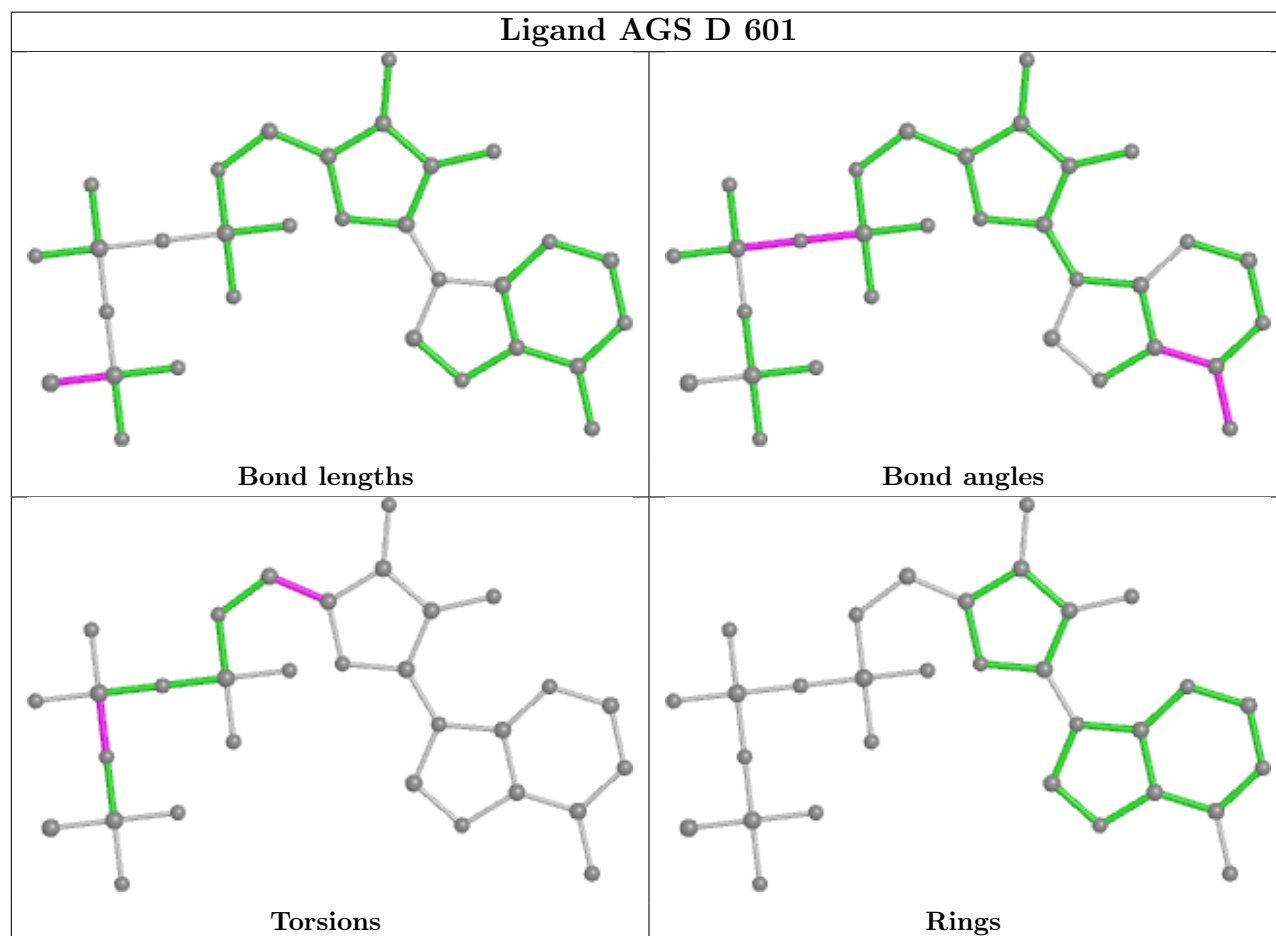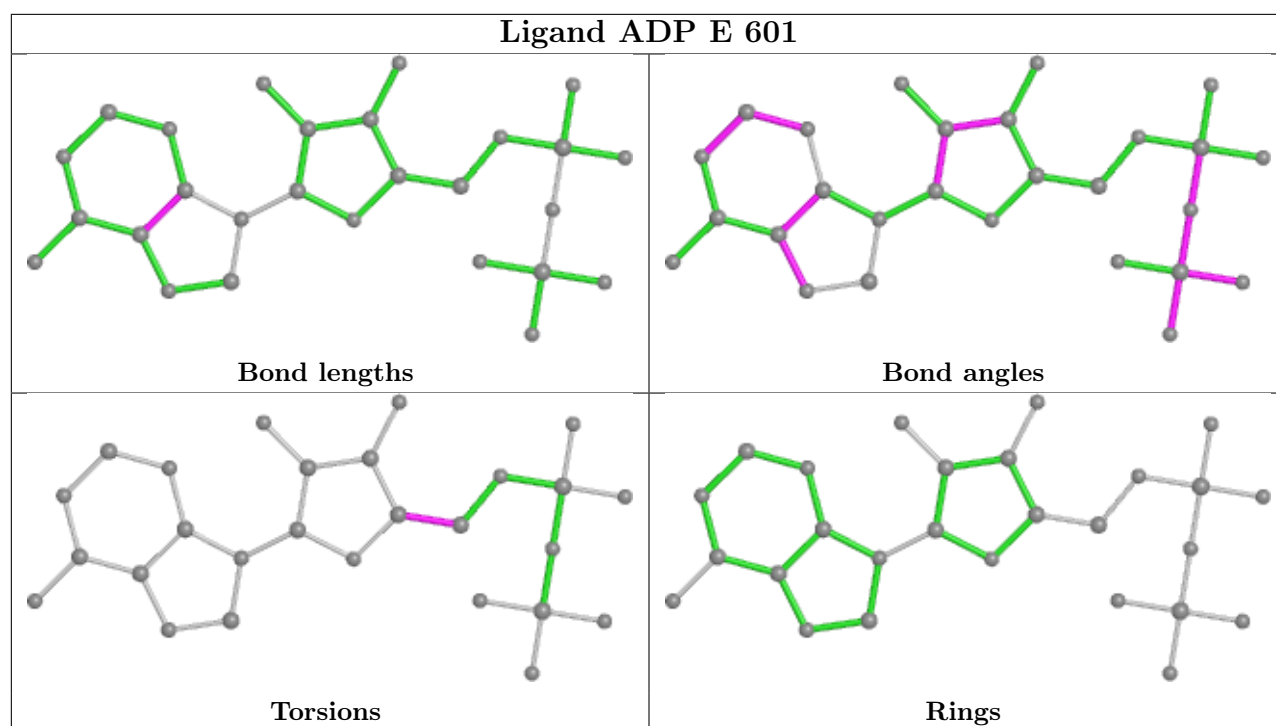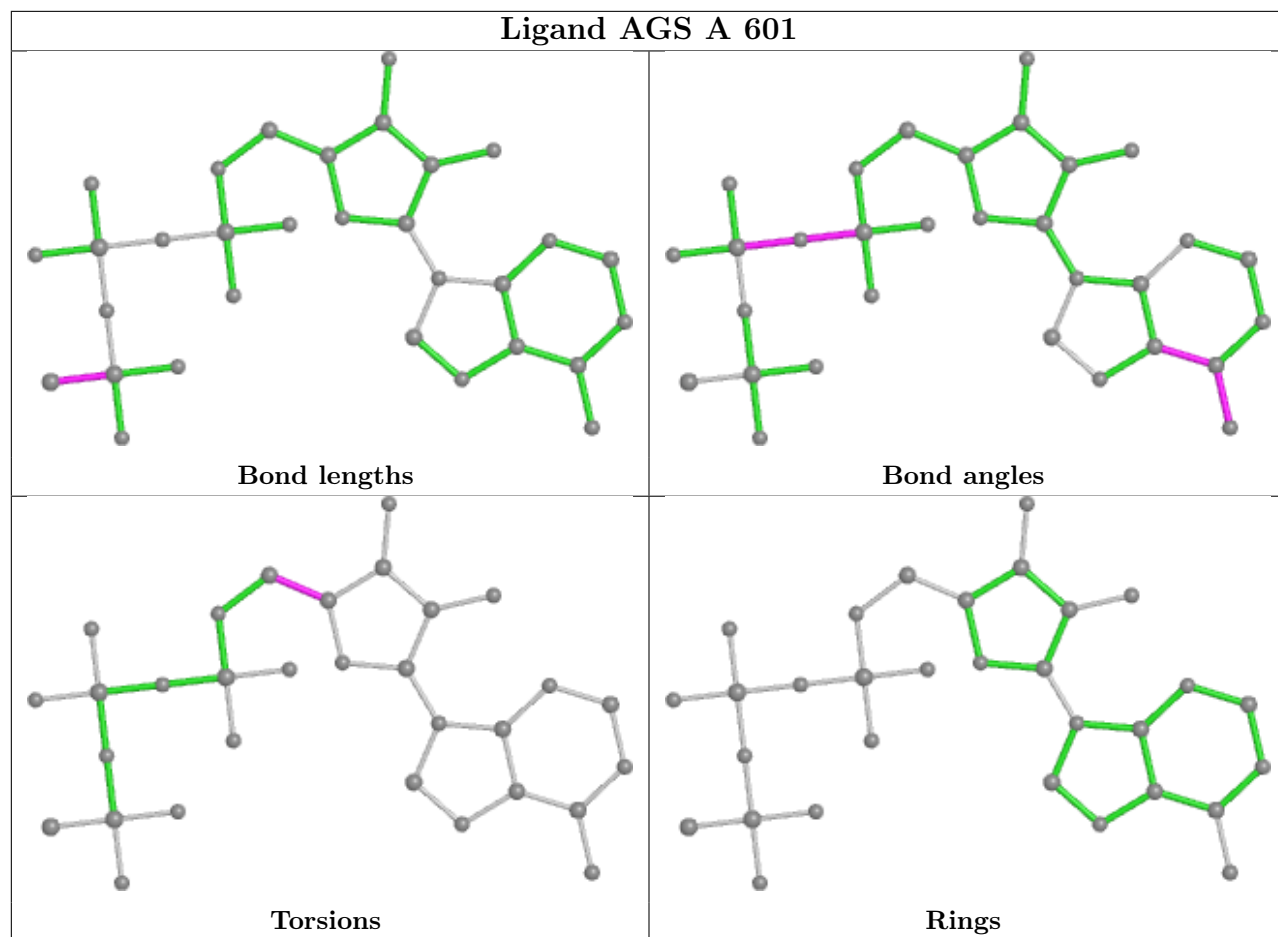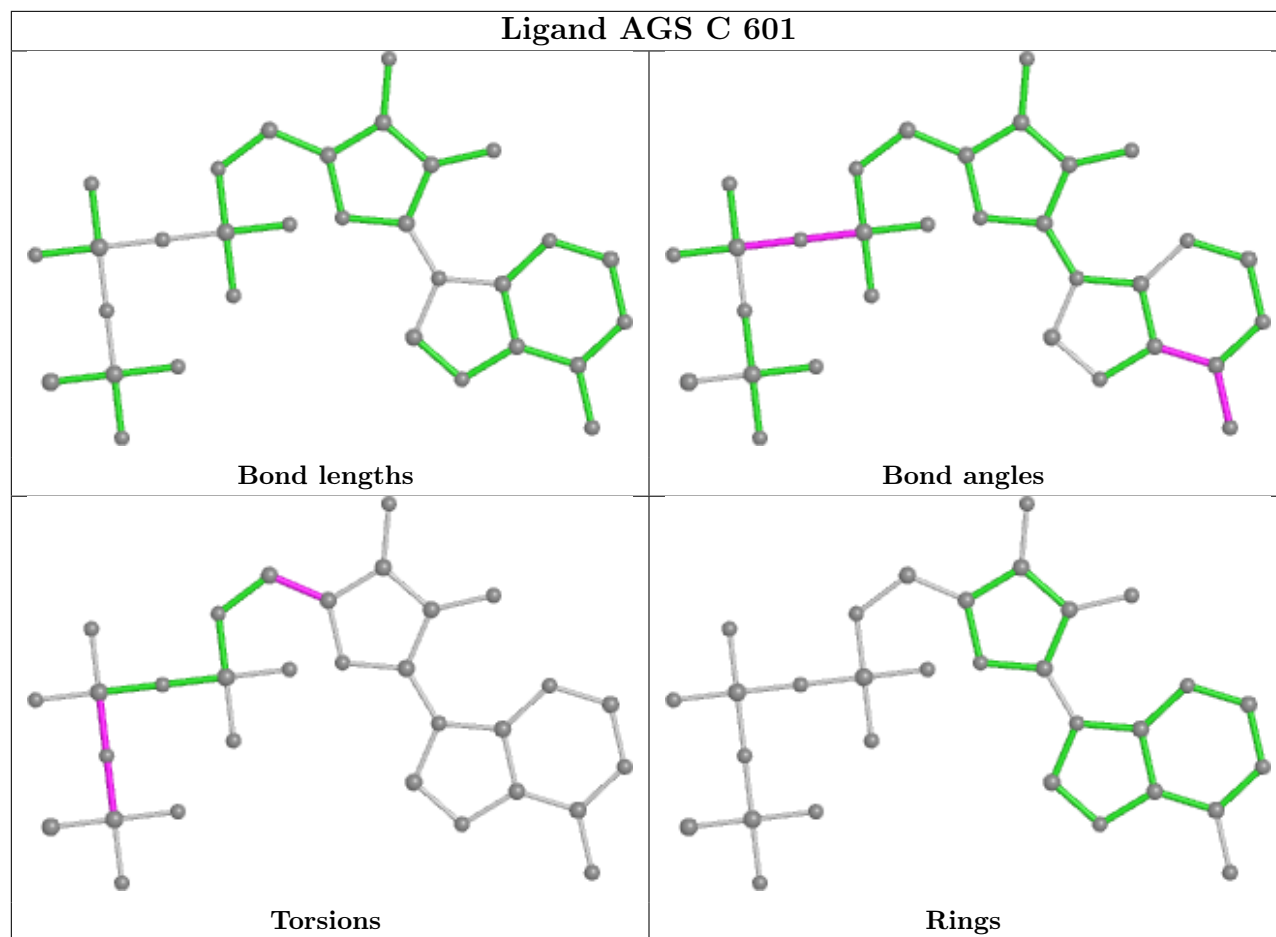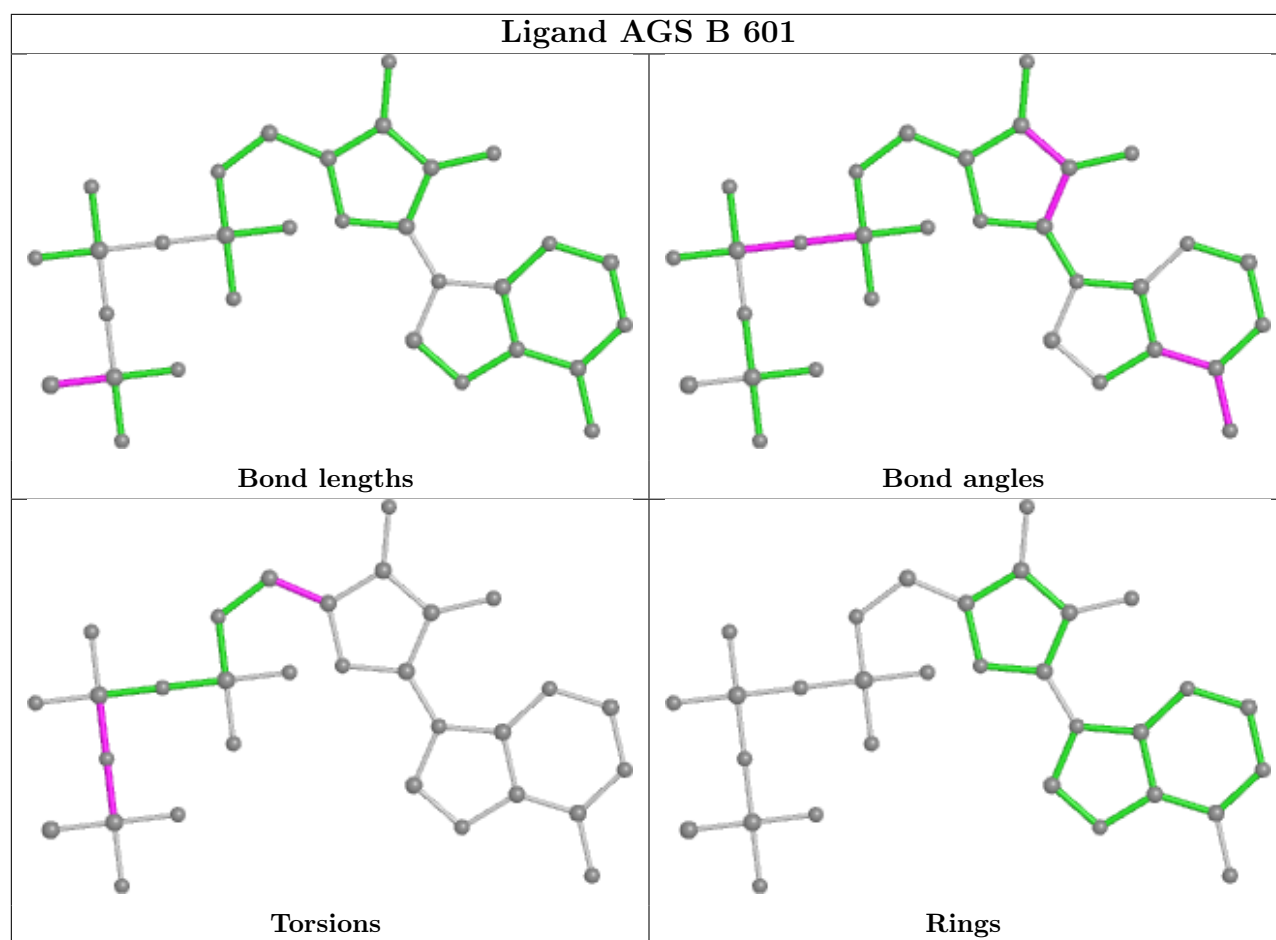
5.7 Other polymers ⓘ

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-38207. 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 ⓘ
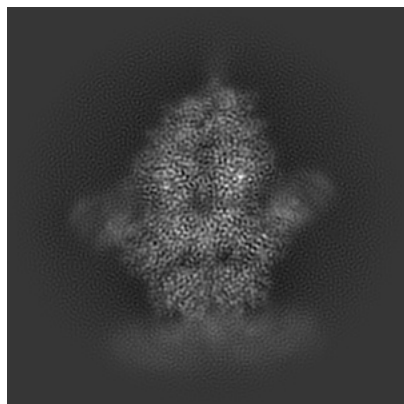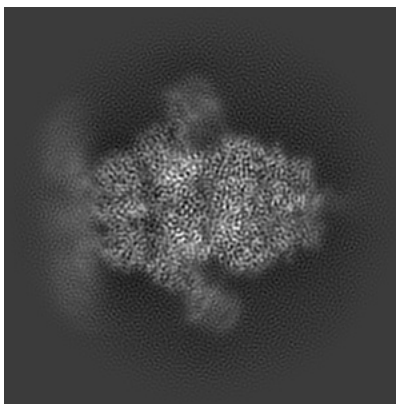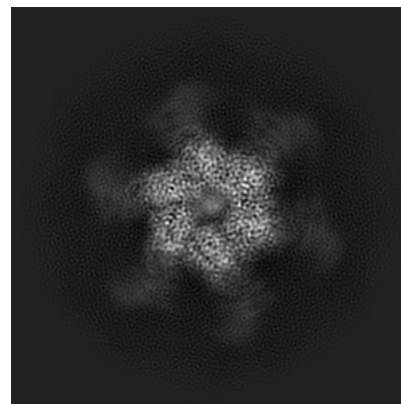
6.1.1 Primary map

X Y Z

6.1.2 Raw map

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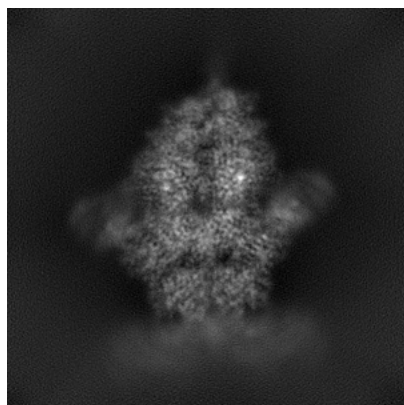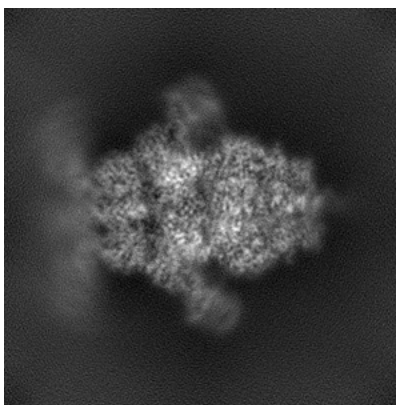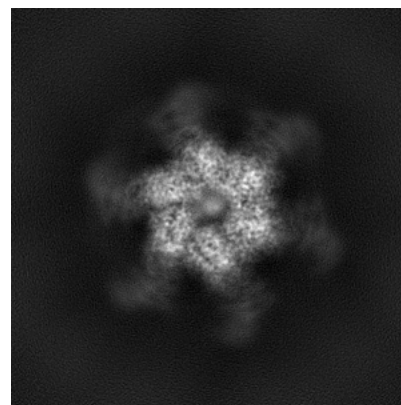
The images above show the map projected in three orthogonal directions.

6.2　Central slices ⓘ
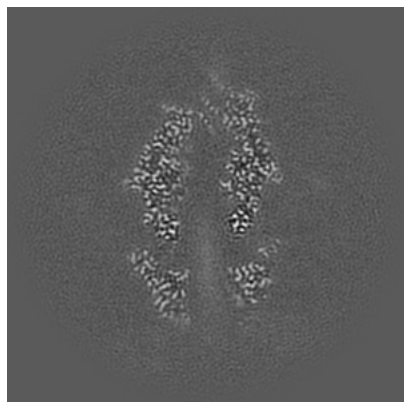
6.2.1　Primary map
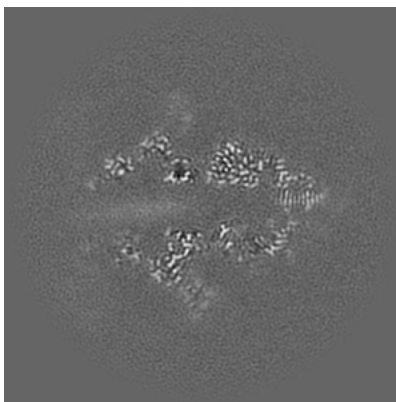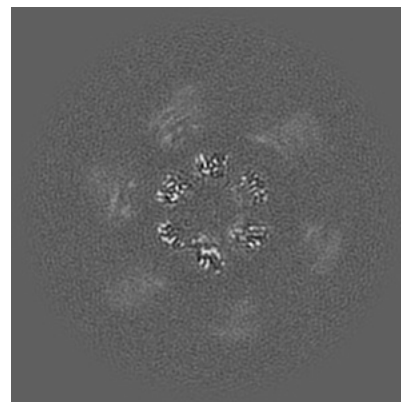
| X Index: 160 | Y Index: 160 | Z Index: 160 |

6.2.2　Raw map
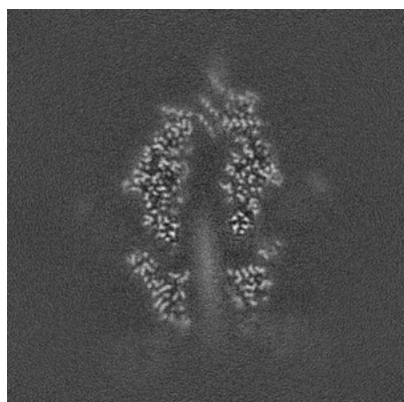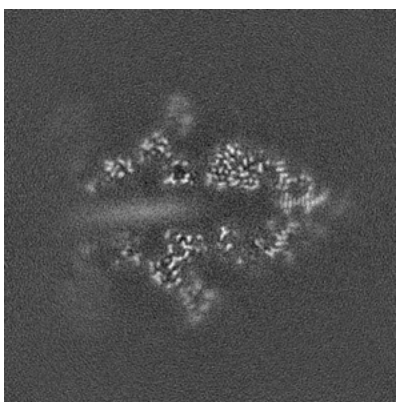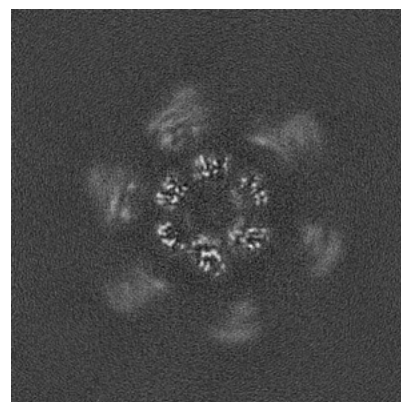
| X Index: 160 | Y Index: 160 | Z Index: 160 |

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

6.3 Largest variance slices (i)

6.3.1 Primary map
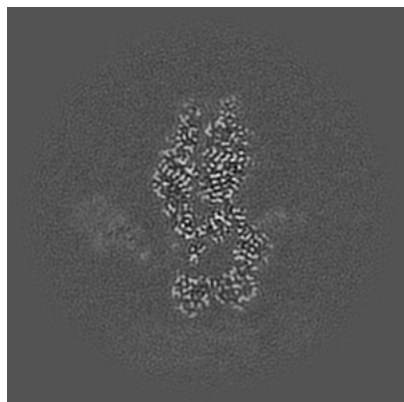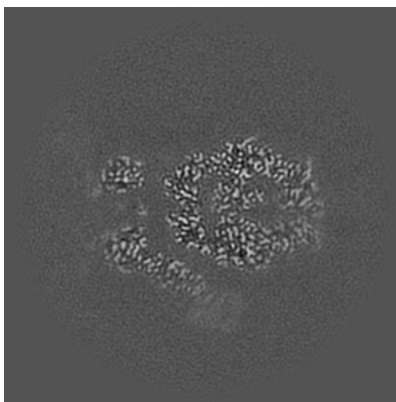
| X Index: 191 | Y Index: 177 | Z Index: 184 |
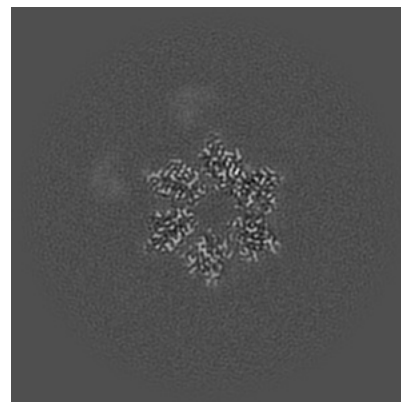
6.3.2 Raw map
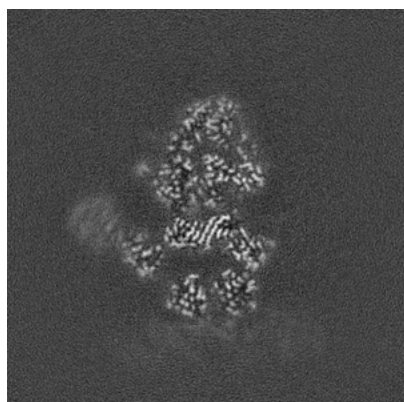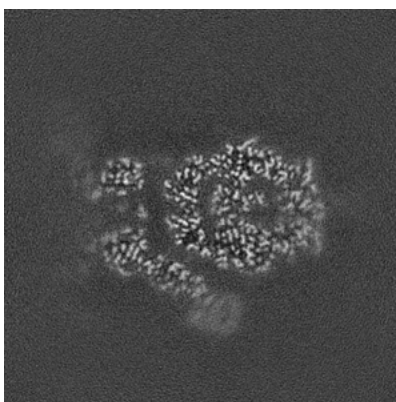
| X Index: 182 | Y Index: 177 | Z Index: 184 |
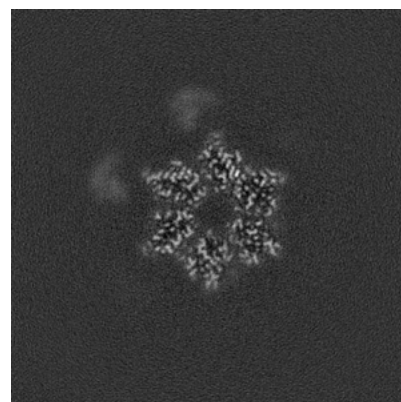
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1   Primary map
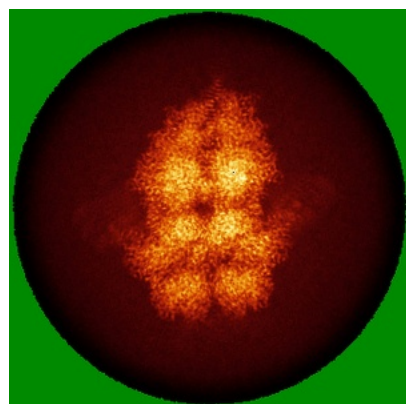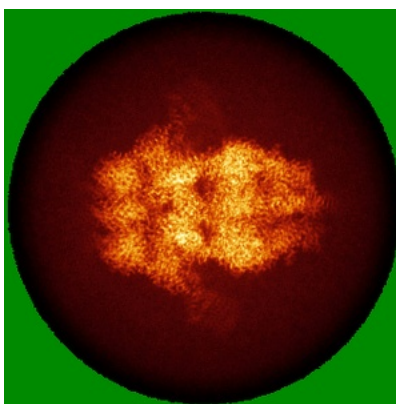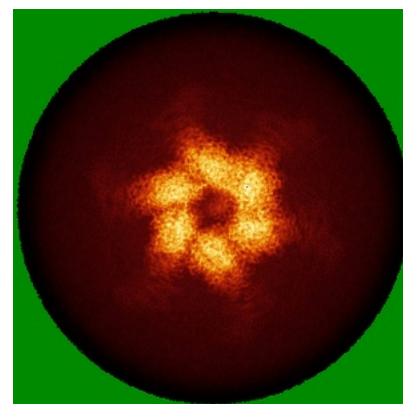
X   Y   Z

6.4.2   Raw map

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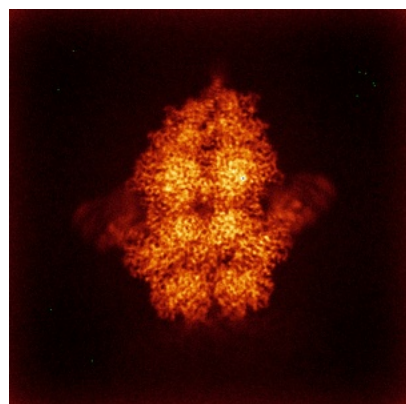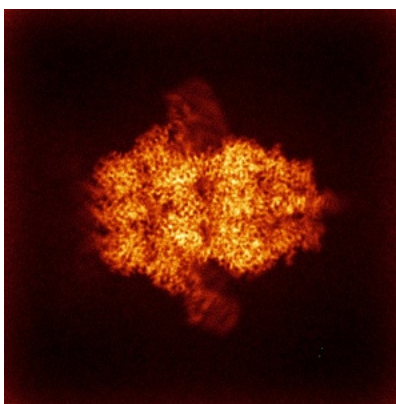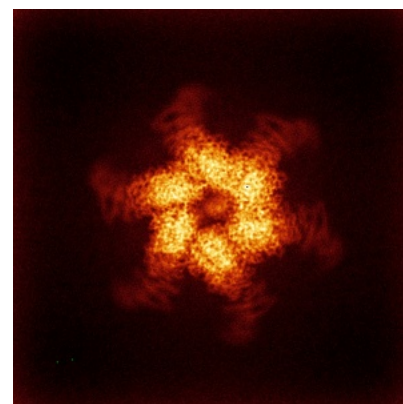
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

| X | Y | Z |
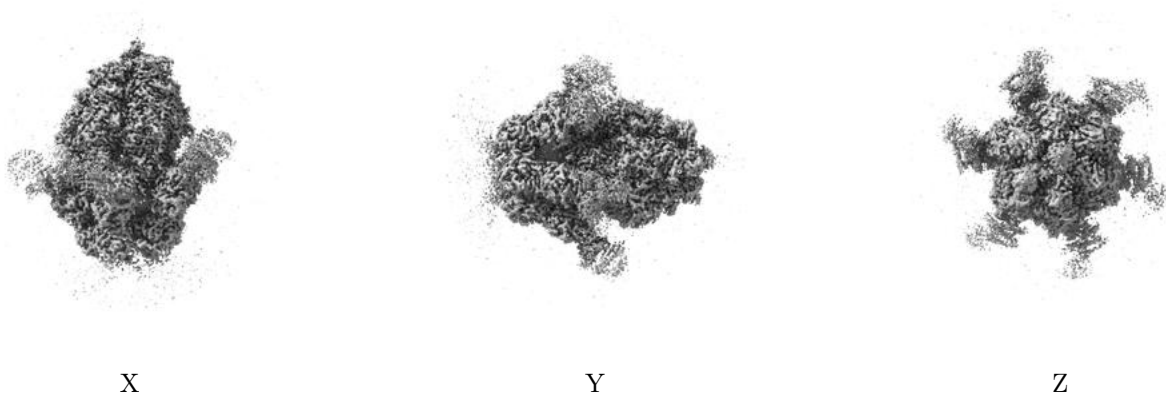
The images above show the 3D surface view of the map at the recommended contour level 0.19. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

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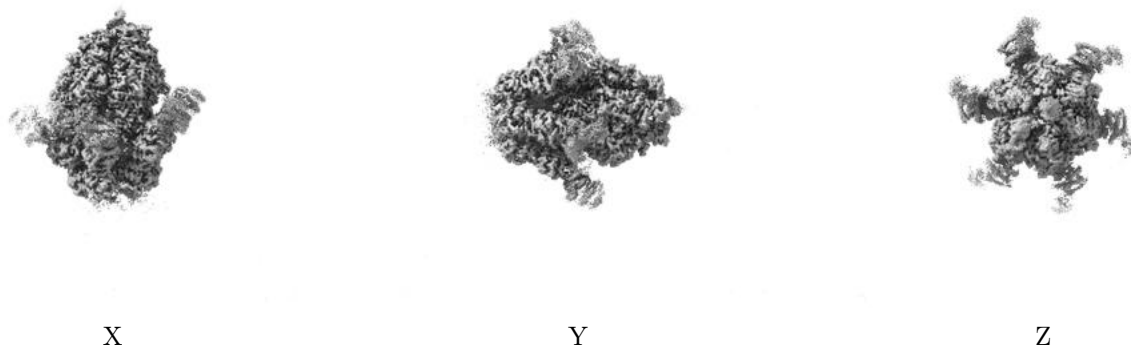
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6 Mask visualisation ⓘ

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

7   Map analysis (i)

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

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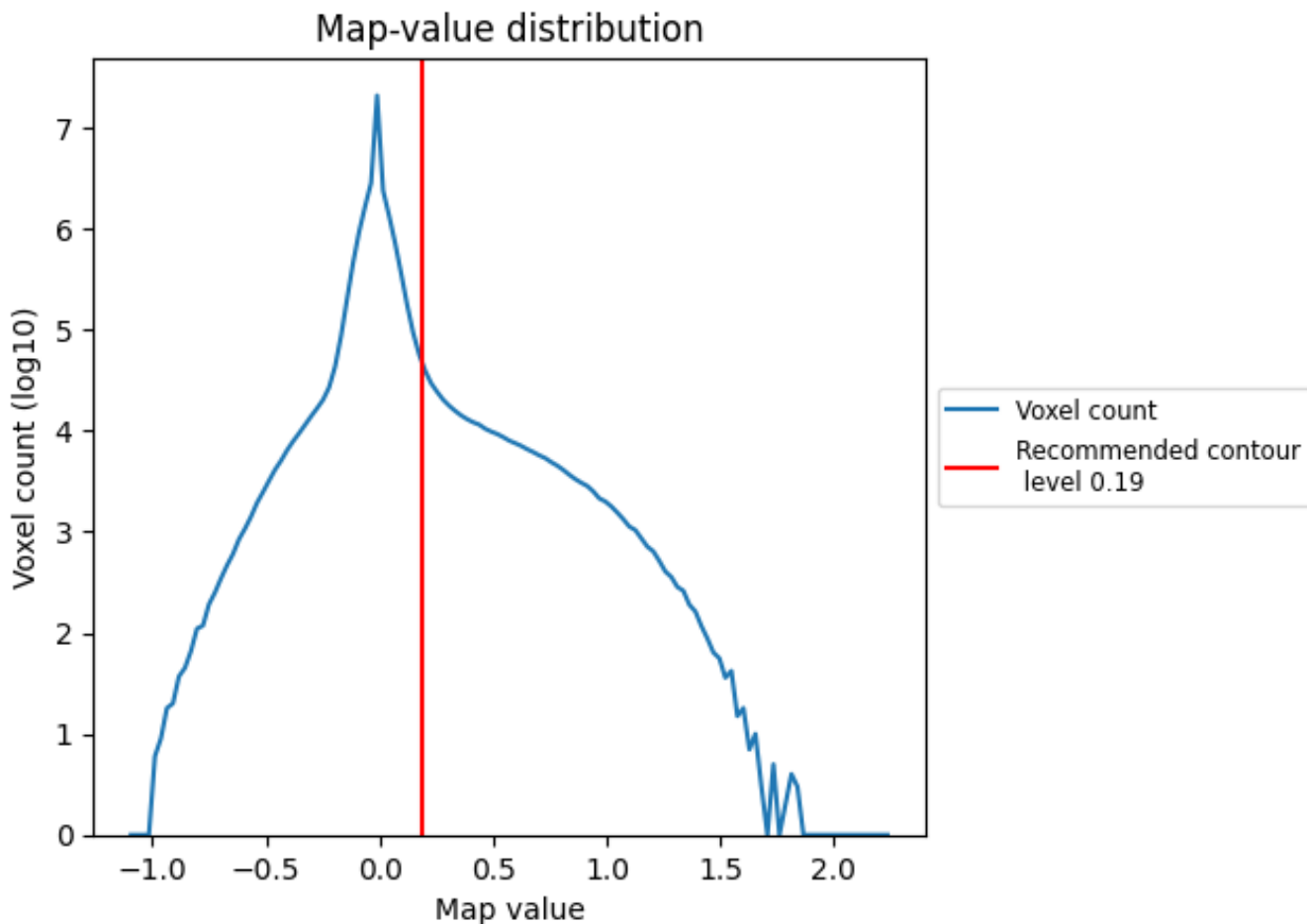
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2   Volume estimate ⓘ
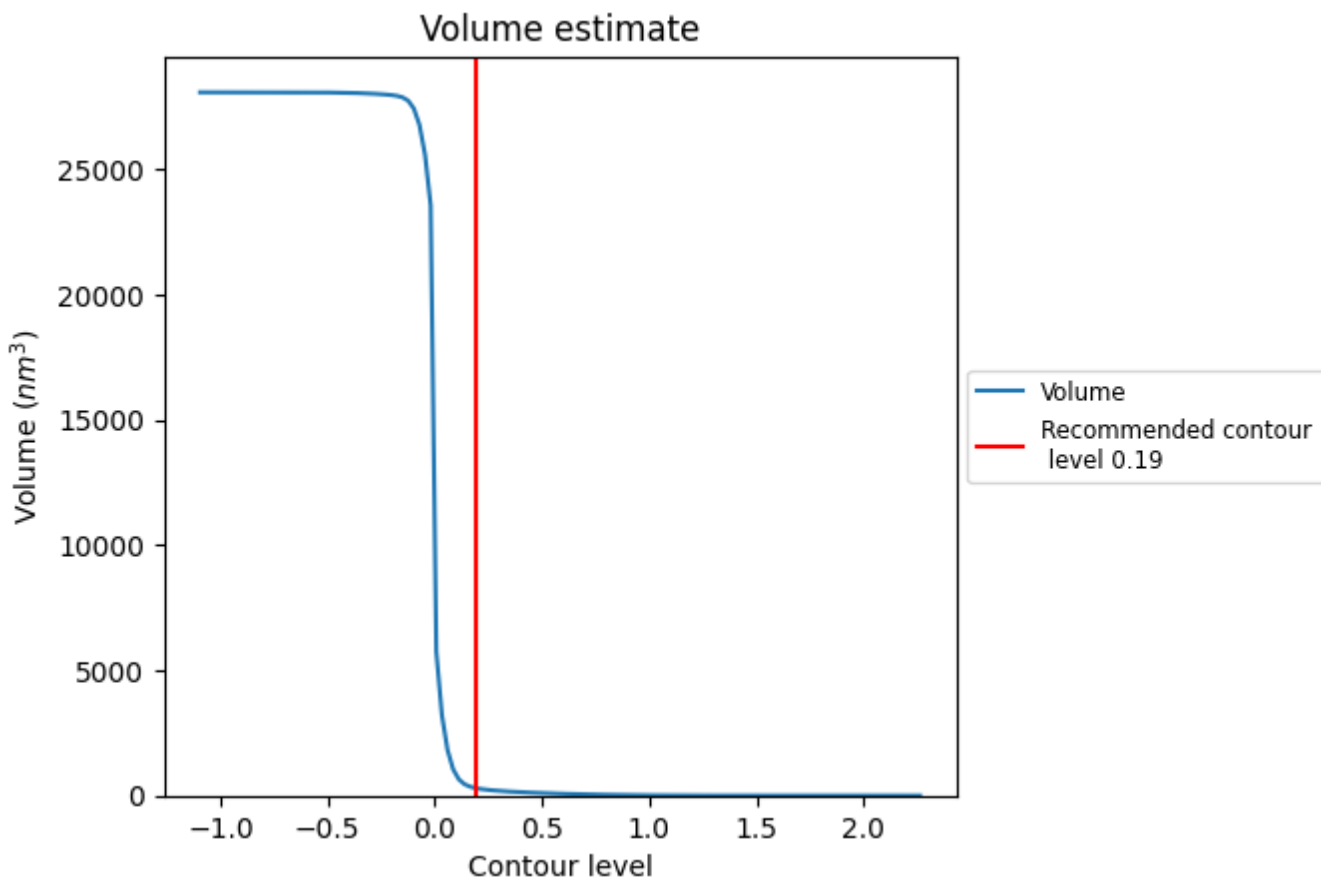
The volume at the recommended contour level is 299 nm^3; this corresponds to an approximate mass of 270 kDa.

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 ⓘ
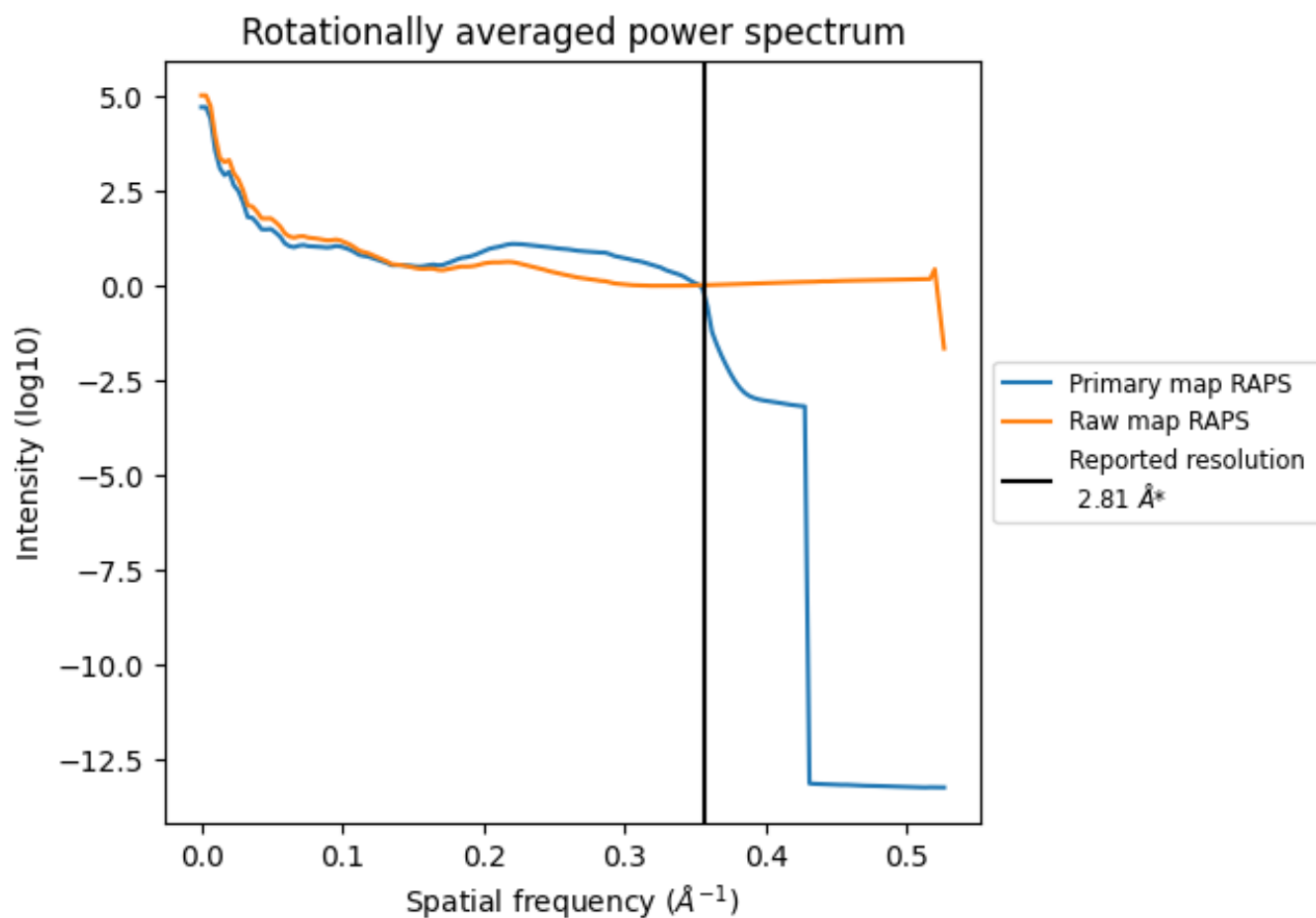
*Reported resolution corresponds to spatial frequency of 0.356 Å^{-1}

8　Fourier-Shell correlation (i)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1　FSC (i)
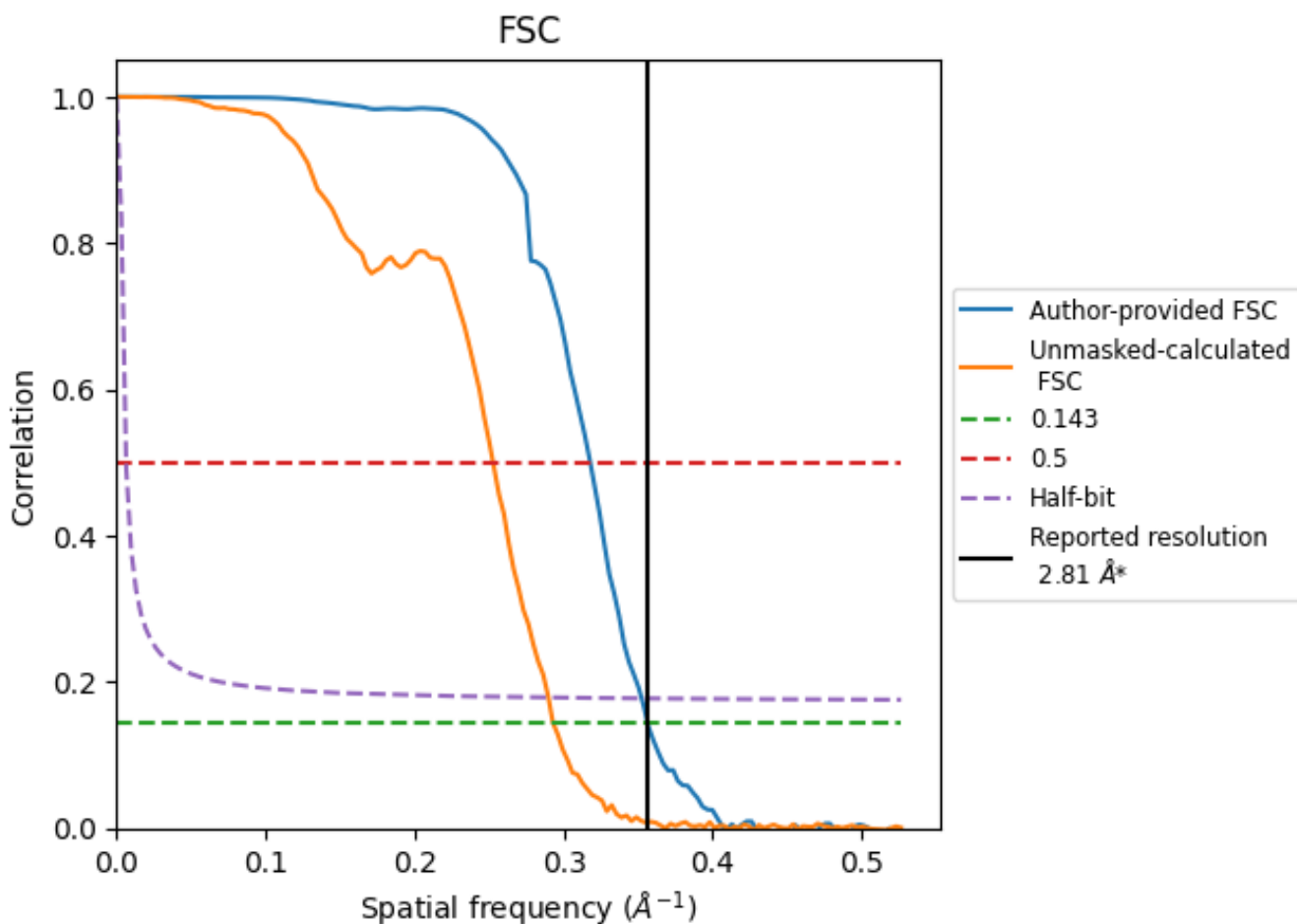
*Reported resolution corresponds to spatial frequency of 0.356 Å^{-1}

8.2   Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.81	-	-
Author-provided FSC curve	2.81	3.15	2.84
Unmasked-calculated*	3.41	3.96	3.45

*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 3.41 differs from the reported value 2.81 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-38207 and PDB model 8XAY. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay ⓘ

X	Y	Z
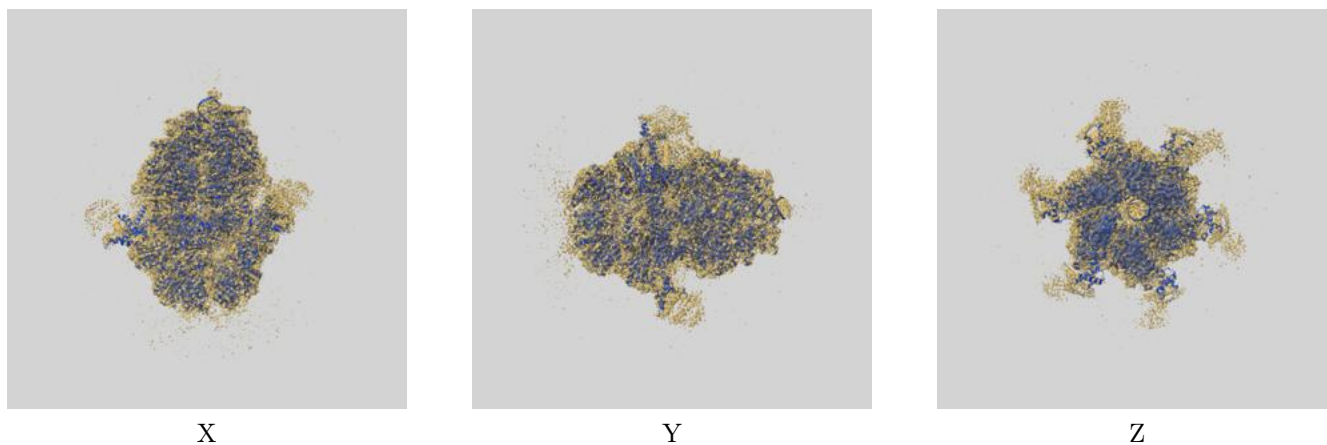
The images above show the 3D surface view of the map at the recommended contour level 0.19 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

X   Y   Z
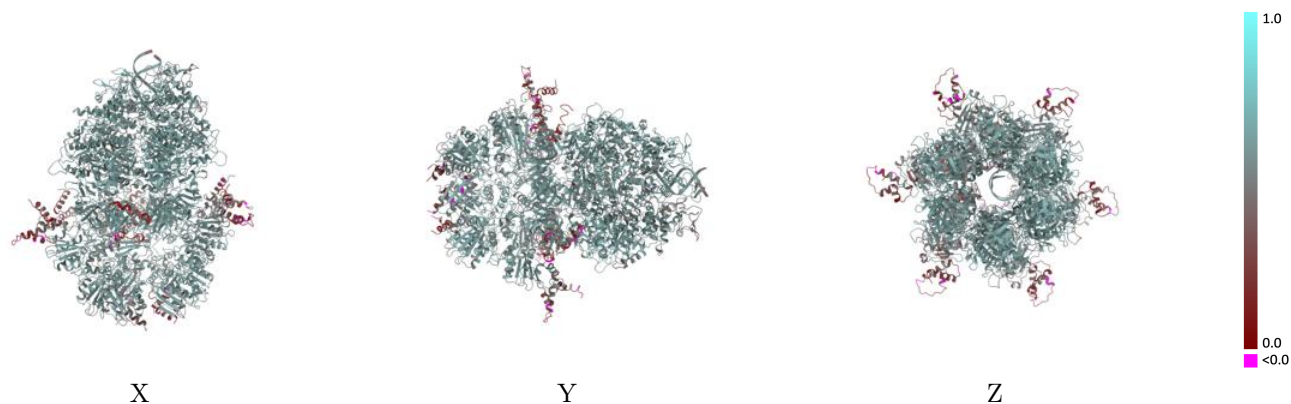
The images above show the model with each residue coloured according its Q-score. This shows
their resolvability in the map with higher Q-score values reflecting better resolvability. Please
note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at
resolutions 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
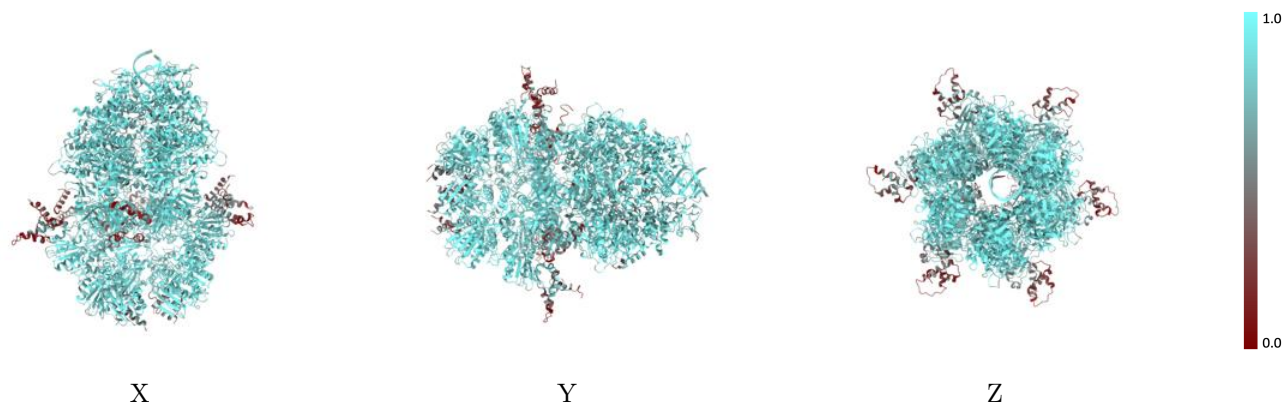
The images above show the model with each residue coloured according to its atom inclusion. This
shows to what extent they are inside the map at the recommended contour level (0.19).

9.4 Atom inclusion ⓘ
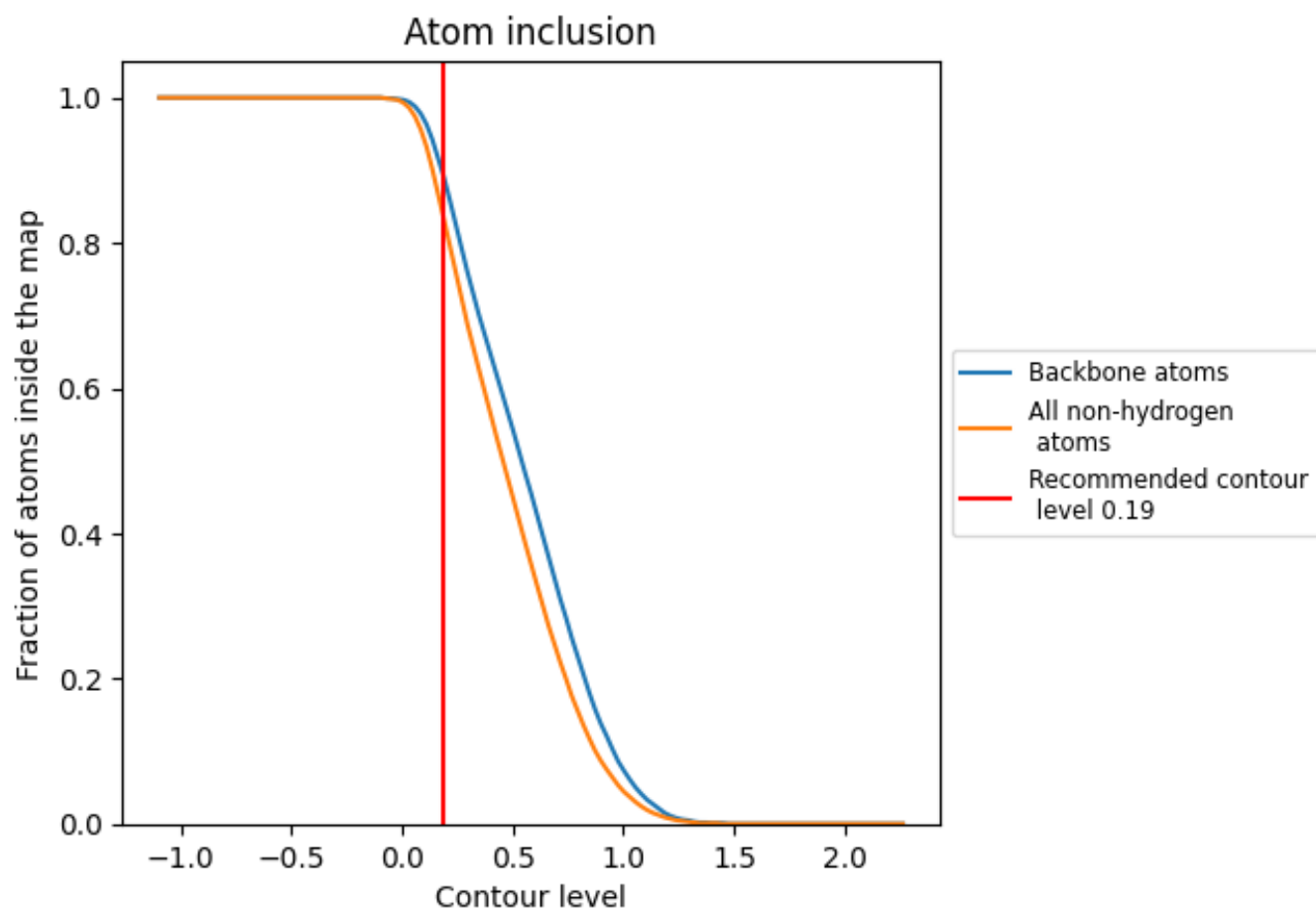
At the recommended contour level, 89% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.19) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8330	0.5500
A	0.8750	0.5810
B	0.8810	0.5760
C	0.9130	0.6030
D	0.8950	0.5930
E	0.8780	0.5760
F	0.8700	0.5780
G	0.6980	0.4810
H	0.6950	0.4820
I	0.6590	0.4470
J	0.7280	0.4810
K	0.7470	0.4870
L	0.7450	0.4860
M	0.8450	0.5430
N	0.8420	0.5470
O	0.8370	0.5420
P	0.8380	0.5410
Q	0.8360	0.5470
R	0.8510	0.5470
S	0.8250	0.5430
T	0.8300	0.5630

1.0

0.0
<0.0