WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB EM Validation Report (i)

May 25, 2025 – 01:05 PM EDT

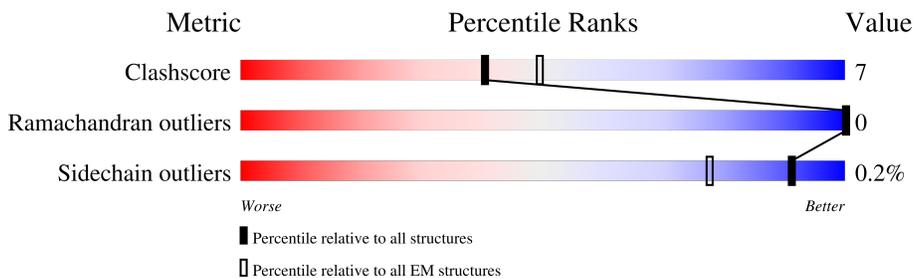|		
PDB ID	:	8TSH / pdb_00008tsh
EMDB ID	:	EMD-41592
Title	:	S. thermodepolymerans KpsMT(E151Q)-KpsE in complex with ATP
Authors	:	Kuklewicz, J.; Zimmer, J.
Deposited on	:	2023-08-11
Resolution	:	3.10 Å(reported)

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.10 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.
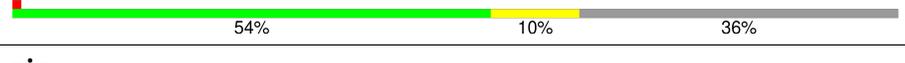
Metric	Percentile Ranks	Value
Clashscore		7
Ramachandran outliers		0
Sidechain outliers		0.2%

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	234	73% 20% 7%
1	B	234	74% 19% 7%
2	C	274	75% 19% 5%
2	D	274	76% 18% 7%
3	E	390	52% 14% 35%
3	F	390	55% 13% 32%
3	G	390	56% 11% 33%
3	H	390	57% 8% 35%

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Mol	Chain	Length	Quality of chain
3	I	390	55% 9% 36%
3	J	390	56% 11% 33%
3	K	390	54% 10% 36%
3	L	390	56% 9% 35%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 24254 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 ABC transporter ATP-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	217	Total 1708	C 1081	N 298	O 318	S 11	0	0
1	B	217	Total 1708	C 1081	N 298	O 318	S 11	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	151	GLN	GLU	engineered mutation	UNP A0A2S5T4B3
A	227	ASP	-	expression tag	UNP A0A2S5T4B3
A	228	TYR	-	expression tag	UNP A0A2S5T4B3
A	229	LYS	-	expression tag	UNP A0A2S5T4B3
A	230	ASP	-	expression tag	UNP A0A2S5T4B3
A	231	ASP	-	expression tag	UNP A0A2S5T4B3
A	232	ASP	-	expression tag	UNP A0A2S5T4B3
A	233	ASP	-	expression tag	UNP A0A2S5T4B3
A	234	LYS	-	expression tag	UNP A0A2S5T4B3
B	151	GLN	GLU	engineered mutation	UNP A0A2S5T4B3
B	227	ASP	-	expression tag	UNP A0A2S5T4B3
B	228	TYR	-	expression tag	UNP A0A2S5T4B3
B	229	LYS	-	expression tag	UNP A0A2S5T4B3
B	230	ASP	-	expression tag	UNP A0A2S5T4B3
B	231	ASP	-	expression tag	UNP A0A2S5T4B3
B	232	ASP	-	expression tag	UNP A0A2S5T4B3
B	233	ASP	-	expression tag	UNP A0A2S5T4B3
B	234	LYS	-	expression tag	UNP A0A2S5T4B3

- Molecule 2 is a protein called Transport permease protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	259	Total 2062	C 1383	N 347	O 325	S 7	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	255	Total	C	N	O	S	0	0
			2033	1364	342	320	7		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	MET	-	initiating methionine	UNP A0A2S5T447
C	-1	GLY	-	expression tag	UNP A0A2S5T447
C	0	LYS	-	expression tag	UNP A0A2S5T447
C	1	ILE	-	expression tag	UNP A0A2S5T447
C	2	HIS	-	expression tag	UNP A0A2S5T447
C	3	LEU	-	expression tag	UNP A0A2S5T447
D	-2	MET	-	initiating methionine	UNP A0A2S5T447
D	-1	GLY	-	expression tag	UNP A0A2S5T447
D	0	LYS	-	expression tag	UNP A0A2S5T447
D	1	ILE	-	expression tag	UNP A0A2S5T447
D	2	HIS	-	expression tag	UNP A0A2S5T447
D	3	LEU	-	expression tag	UNP A0A2S5T447

- Molecule 3 is a protein called Capsular biosynthesis protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	255	Total	C	N	O	S	0	0
			2073	1333	358	374	8		
3	F	265	Total	C	N	O	S	0	0
			2158	1385	376	389	8		
3	G	263	Total	C	N	O	S	0	0
			2140	1374	372	386	8		
3	H	254	Total	C	N	O	S	0	0
			2065	1326	359	372	8		
3	I	251	Total	C	N	O	S	0	0
			2032	1307	349	368	8		
3	J	260	Total	C	N	O	S	0	0
			2115	1359	366	382	8		
3	K	251	Total	C	N	O	S	0	0
			2042	1308	354	372	8		
3	L	253	Total	C	N	O	S	0	0
			2054	1320	356	370	8		

There are 184 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
E	-1	GLY	-	expression tag	UNP A0A2S5T4A0
E	0	LYS	-	expression tag	UNP A0A2S5T4A0
E	1	ILE	-	expression tag	UNP A0A2S5T4A0
E	2	HIS	-	expression tag	UNP A0A2S5T4A0
E	77	CYS	LEU	conflict	UNP A0A2S5T4A0
E	138	CYS	SER	conflict	UNP A0A2S5T4A0
E	372	GLY	-	expression tag	UNP A0A2S5T4A0
E	373	SER	-	expression tag	UNP A0A2S5T4A0
E	374	GLY	-	expression tag	UNP A0A2S5T4A0
E	375	SER	-	expression tag	UNP A0A2S5T4A0
E	376	GLY	-	expression tag	UNP A0A2S5T4A0
E	377	SER	-	expression tag	UNP A0A2S5T4A0
E	378	HIS	-	expression tag	UNP A0A2S5T4A0
E	379	HIS	-	expression tag	UNP A0A2S5T4A0
E	380	HIS	-	expression tag	UNP A0A2S5T4A0
E	381	HIS	-	expression tag	UNP A0A2S5T4A0
E	382	HIS	-	expression tag	UNP A0A2S5T4A0
E	383	HIS	-	expression tag	UNP A0A2S5T4A0
E	384	HIS	-	expression tag	UNP A0A2S5T4A0
E	385	HIS	-	expression tag	UNP A0A2S5T4A0
E	386	HIS	-	expression tag	UNP A0A2S5T4A0
E	387	HIS	-	expression tag	UNP A0A2S5T4A0
F	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
F	-1	GLY	-	expression tag	UNP A0A2S5T4A0
F	0	LYS	-	expression tag	UNP A0A2S5T4A0
F	1	ILE	-	expression tag	UNP A0A2S5T4A0
F	2	HIS	-	expression tag	UNP A0A2S5T4A0
F	77	CYS	LEU	conflict	UNP A0A2S5T4A0
F	138	CYS	SER	conflict	UNP A0A2S5T4A0
F	372	GLY	-	expression tag	UNP A0A2S5T4A0
F	373	SER	-	expression tag	UNP A0A2S5T4A0
F	374	GLY	-	expression tag	UNP A0A2S5T4A0
F	375	SER	-	expression tag	UNP A0A2S5T4A0
F	376	GLY	-	expression tag	UNP A0A2S5T4A0
F	377	SER	-	expression tag	UNP A0A2S5T4A0
F	378	HIS	-	expression tag	UNP A0A2S5T4A0
F	379	HIS	-	expression tag	UNP A0A2S5T4A0
F	380	HIS	-	expression tag	UNP A0A2S5T4A0
F	381	HIS	-	expression tag	UNP A0A2S5T4A0
F	382	HIS	-	expression tag	UNP A0A2S5T4A0
F	383	HIS	-	expression tag	UNP A0A2S5T4A0
F	384	HIS	-	expression tag	UNP A0A2S5T4A0

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Chain	Residue	Modelled	Actual	Comment	Reference
F	385	HIS	-	expression tag	UNP A0A2S5T4A0
F	386	HIS	-	expression tag	UNP A0A2S5T4A0
F	387	HIS	-	expression tag	UNP A0A2S5T4A0
G	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
G	-1	GLY	-	expression tag	UNP A0A2S5T4A0
G	0	LYS	-	expression tag	UNP A0A2S5T4A0
G	1	ILE	-	expression tag	UNP A0A2S5T4A0
G	2	HIS	-	expression tag	UNP A0A2S5T4A0
G	77	CYS	LEU	conflict	UNP A0A2S5T4A0
G	138	CYS	SER	conflict	UNP A0A2S5T4A0
G	372	GLY	-	expression tag	UNP A0A2S5T4A0
G	373	SER	-	expression tag	UNP A0A2S5T4A0
G	374	GLY	-	expression tag	UNP A0A2S5T4A0
G	375	SER	-	expression tag	UNP A0A2S5T4A0
G	376	GLY	-	expression tag	UNP A0A2S5T4A0
G	377	SER	-	expression tag	UNP A0A2S5T4A0
G	378	HIS	-	expression tag	UNP A0A2S5T4A0
G	379	HIS	-	expression tag	UNP A0A2S5T4A0
G	380	HIS	-	expression tag	UNP A0A2S5T4A0
G	381	HIS	-	expression tag	UNP A0A2S5T4A0
G	382	HIS	-	expression tag	UNP A0A2S5T4A0
G	383	HIS	-	expression tag	UNP A0A2S5T4A0
G	384	HIS	-	expression tag	UNP A0A2S5T4A0
G	385	HIS	-	expression tag	UNP A0A2S5T4A0
G	386	HIS	-	expression tag	UNP A0A2S5T4A0
G	387	HIS	-	expression tag	UNP A0A2S5T4A0
H	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
H	-1	GLY	-	expression tag	UNP A0A2S5T4A0
H	0	LYS	-	expression tag	UNP A0A2S5T4A0
H	1	ILE	-	expression tag	UNP A0A2S5T4A0
H	2	HIS	-	expression tag	UNP A0A2S5T4A0
H	77	CYS	LEU	conflict	UNP A0A2S5T4A0
H	138	CYS	SER	conflict	UNP A0A2S5T4A0
H	372	GLY	-	expression tag	UNP A0A2S5T4A0
H	373	SER	-	expression tag	UNP A0A2S5T4A0
H	374	GLY	-	expression tag	UNP A0A2S5T4A0
H	375	SER	-	expression tag	UNP A0A2S5T4A0
H	376	GLY	-	expression tag	UNP A0A2S5T4A0
H	377	SER	-	expression tag	UNP A0A2S5T4A0
H	378	HIS	-	expression tag	UNP A0A2S5T4A0
H	379	HIS	-	expression tag	UNP A0A2S5T4A0
H	380	HIS	-	expression tag	UNP A0A2S5T4A0

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Chain	Residue	Modelled	Actual	Comment	Reference
H	381	HIS	-	expression tag	UNP A0A2S5T4A0
H	382	HIS	-	expression tag	UNP A0A2S5T4A0
H	383	HIS	-	expression tag	UNP A0A2S5T4A0
H	384	HIS	-	expression tag	UNP A0A2S5T4A0
H	385	HIS	-	expression tag	UNP A0A2S5T4A0
H	386	HIS	-	expression tag	UNP A0A2S5T4A0
H	387	HIS	-	expression tag	UNP A0A2S5T4A0
I	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
I	-1	GLY	-	expression tag	UNP A0A2S5T4A0
I	0	LYS	-	expression tag	UNP A0A2S5T4A0
I	1	ILE	-	expression tag	UNP A0A2S5T4A0
I	2	HIS	-	expression tag	UNP A0A2S5T4A0
I	77	CYS	LEU	conflict	UNP A0A2S5T4A0
I	138	CYS	SER	conflict	UNP A0A2S5T4A0
I	372	GLY	-	expression tag	UNP A0A2S5T4A0
I	373	SER	-	expression tag	UNP A0A2S5T4A0
I	374	GLY	-	expression tag	UNP A0A2S5T4A0
I	375	SER	-	expression tag	UNP A0A2S5T4A0
I	376	GLY	-	expression tag	UNP A0A2S5T4A0
I	377	SER	-	expression tag	UNP A0A2S5T4A0
I	378	HIS	-	expression tag	UNP A0A2S5T4A0
I	379	HIS	-	expression tag	UNP A0A2S5T4A0
I	380	HIS	-	expression tag	UNP A0A2S5T4A0
I	381	HIS	-	expression tag	UNP A0A2S5T4A0
I	382	HIS	-	expression tag	UNP A0A2S5T4A0
I	383	HIS	-	expression tag	UNP A0A2S5T4A0
I	384	HIS	-	expression tag	UNP A0A2S5T4A0
I	385	HIS	-	expression tag	UNP A0A2S5T4A0
I	386	HIS	-	expression tag	UNP A0A2S5T4A0
I	387	HIS	-	expression tag	UNP A0A2S5T4A0
J	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
J	-1	GLY	-	expression tag	UNP A0A2S5T4A0
J	0	LYS	-	expression tag	UNP A0A2S5T4A0
J	1	ILE	-	expression tag	UNP A0A2S5T4A0
J	2	HIS	-	expression tag	UNP A0A2S5T4A0
J	77	CYS	LEU	conflict	UNP A0A2S5T4A0
J	138	CYS	SER	conflict	UNP A0A2S5T4A0
J	372	GLY	-	expression tag	UNP A0A2S5T4A0
J	373	SER	-	expression tag	UNP A0A2S5T4A0
J	374	GLY	-	expression tag	UNP A0A2S5T4A0
J	375	SER	-	expression tag	UNP A0A2S5T4A0
J	376	GLY	-	expression tag	UNP A0A2S5T4A0

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Chain	Residue	Modelled	Actual	Comment	Reference
J	377	SER	-	expression tag	UNP A0A2S5T4A0
J	378	HIS	-	expression tag	UNP A0A2S5T4A0
J	379	HIS	-	expression tag	UNP A0A2S5T4A0
J	380	HIS	-	expression tag	UNP A0A2S5T4A0
J	381	HIS	-	expression tag	UNP A0A2S5T4A0
J	382	HIS	-	expression tag	UNP A0A2S5T4A0
J	383	HIS	-	expression tag	UNP A0A2S5T4A0
J	384	HIS	-	expression tag	UNP A0A2S5T4A0
J	385	HIS	-	expression tag	UNP A0A2S5T4A0
J	386	HIS	-	expression tag	UNP A0A2S5T4A0
J	387	HIS	-	expression tag	UNP A0A2S5T4A0
K	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
K	-1	GLY	-	expression tag	UNP A0A2S5T4A0
K	0	LYS	-	expression tag	UNP A0A2S5T4A0
K	1	ILE	-	expression tag	UNP A0A2S5T4A0
K	2	HIS	-	expression tag	UNP A0A2S5T4A0
K	77	CYS	LEU	conflict	UNP A0A2S5T4A0
K	138	CYS	SER	conflict	UNP A0A2S5T4A0
K	372	GLY	-	expression tag	UNP A0A2S5T4A0
K	373	SER	-	expression tag	UNP A0A2S5T4A0
K	374	GLY	-	expression tag	UNP A0A2S5T4A0
K	375	SER	-	expression tag	UNP A0A2S5T4A0
K	376	GLY	-	expression tag	UNP A0A2S5T4A0
K	377	SER	-	expression tag	UNP A0A2S5T4A0
K	378	HIS	-	expression tag	UNP A0A2S5T4A0
K	379	HIS	-	expression tag	UNP A0A2S5T4A0
K	380	HIS	-	expression tag	UNP A0A2S5T4A0
K	381	HIS	-	expression tag	UNP A0A2S5T4A0
K	382	HIS	-	expression tag	UNP A0A2S5T4A0
K	383	HIS	-	expression tag	UNP A0A2S5T4A0
K	384	HIS	-	expression tag	UNP A0A2S5T4A0
K	385	HIS	-	expression tag	UNP A0A2S5T4A0
K	386	HIS	-	expression tag	UNP A0A2S5T4A0
K	387	HIS	-	expression tag	UNP A0A2S5T4A0
L	-2	MET	-	initiating methionine	UNP A0A2S5T4A0
L	-1	GLY	-	expression tag	UNP A0A2S5T4A0
L	0	LYS	-	expression tag	UNP A0A2S5T4A0
L	1	ILE	-	expression tag	UNP A0A2S5T4A0
L	2	HIS	-	expression tag	UNP A0A2S5T4A0
L	77	CYS	LEU	conflict	UNP A0A2S5T4A0
L	138	CYS	SER	conflict	UNP A0A2S5T4A0
L	372	GLY	-	expression tag	UNP A0A2S5T4A0

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Chain	Residue	Modelled	Actual	Comment	Reference
L	373	SER	-	expression tag	UNP A0A2S5T4A0
L	374	GLY	-	expression tag	UNP A0A2S5T4A0
L	375	SER	-	expression tag	UNP A0A2S5T4A0
L	376	GLY	-	expression tag	UNP A0A2S5T4A0
L	377	SER	-	expression tag	UNP A0A2S5T4A0
L	378	HIS	-	expression tag	UNP A0A2S5T4A0
L	379	HIS	-	expression tag	UNP A0A2S5T4A0
L	380	HIS	-	expression tag	UNP A0A2S5T4A0
L	381	HIS	-	expression tag	UNP A0A2S5T4A0
L	382	HIS	-	expression tag	UNP A0A2S5T4A0
L	383	HIS	-	expression tag	UNP A0A2S5T4A0
L	384	HIS	-	expression tag	UNP A0A2S5T4A0
L	385	HIS	-	expression tag	UNP A0A2S5T4A0
L	386	HIS	-	expression tag	UNP A0A2S5T4A0
L	387	HIS	-	expression tag	UNP A0A2S5T4A0

- Molecule 4 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).
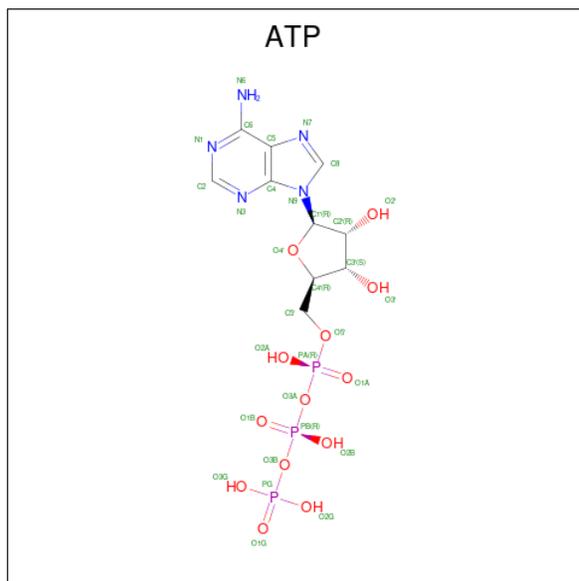
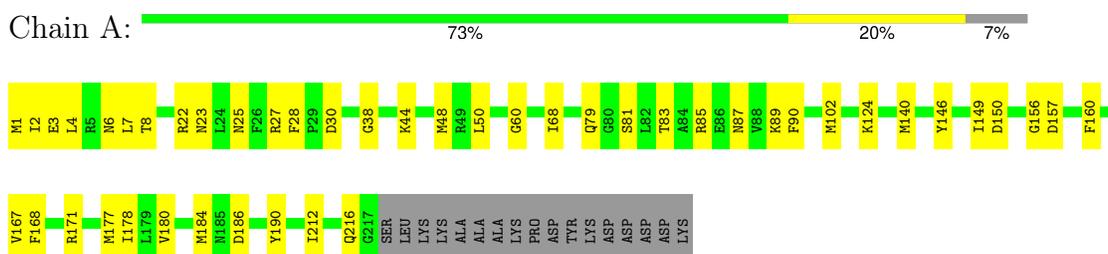| Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
4	B	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

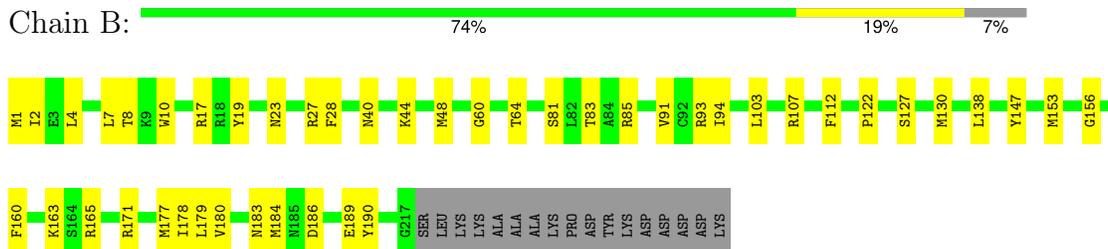| Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total 1	Mg 1	0
5	B	1	Total 1	Mg 1	0

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.
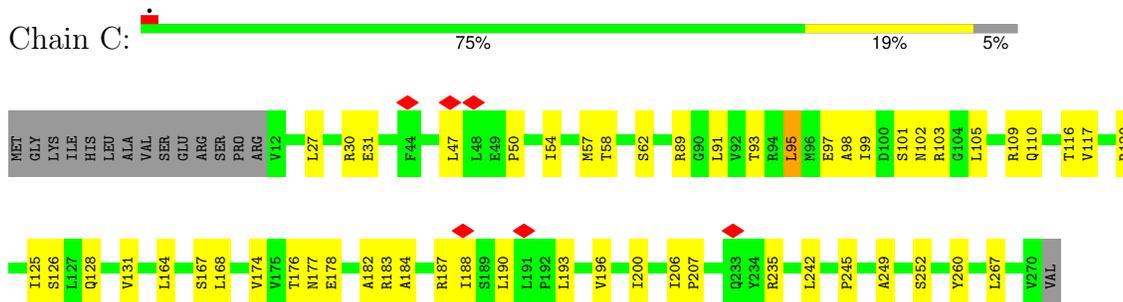
• Molecule 1: ABC transporter ATP-binding protein

Chain A:

• Molecule 1: ABC transporter ATP-binding protein

Chain B:

• Molecule 2: Transport permease protein

Chain C:

• Molecule 2: Transport permease protein

Chain D:

MET GLY LYS ILE HIS LEU ALA VAL SER GLU ARG SER PRO ARG VAL LYS R14 V23 R30 E31 L32 K33 F44 W45 V46 L47 L48 E49 P50 H53 I54 A55 V56 M57 L78 L82 I83 M87 F88 R89 T93 R94 E97 A98 I99 D100 R103 Q110

R120 V131 E153 I162 F171 T176 R183 I188 S189 L190 L191 P192 L193 V196 P207 P208 Q209 Y210 L211 P212 Q215 L216 R235 V236 L237 N241 Y244 L251 A256 A268 SER VAL VAL

- Molecule 3: Capsular biosynthesis protein

Chain E: 52% 14% 35%

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG LEU T10 Q15 W16 A17 L21 V25 A26 T27 L31 R37 I44 Q48 T49 S50 SER ASN ALA PRO THR GLY MET SER GLY ALA LEU LEU ALA GLY LEU THR PRO A71 L79 Y82 I83 H84

S85 M86 G87 L88 L89 Q90 K91 L92 H101 V130 M134 D135 D136 L140 L141 V145 Q146 G147 F148 E149 L156 I160 S164 N169 S172 L187 A192 Q195 E196 A197 K198 L201 I202 A203 F204 GLN LYS HIS LYS LEU ASP PRO LEU ALA

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

GLY LYS ASN GLY ASP ARG ILE ASN ALA VAL ALA ALA GLU F289 H290 D291 L294 Q295 V296 G297 F298 A299 E300 D301 A302 Y303 K304 L305 A306 L307 E311 R314 L321 K322 V326 R340 N344 L348 L354 I355 Y356 L361 V362 T365 I366 R367 D368 HIS GLN

ASP GLY SER GLY SER GLY SER HIS HIS HIS HIS HIS HIS HIS HIS

- Molecule 3: Capsular biosynthesis protein

Chain F: 55% 13% 32%

MET GLY LYS ILE HIS MET K4 L9 T10 A11 L14 L18 L21 V25 V28 V32 V46 R47 S50 SER ASN ALA PRO THR GLY MET SER GLY ALA LEU LEU ALA GLY LEU THR PRO ALA S72 R73 L79 Y82 S85 L92

H101 D108 P109 L110 F111 Y125 E131 V132 L133 M134 I137 C138 L141 T142 V143 R144 E149 L156 E162 E163 R166 Q179 L187 E188 R189 L194 A197 I202 A203 F204 Q205 A206 LYS HIS LYS LEU LEU ASP PRO LEU ALA GLN ALA GLN ALA THR

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

ARG ILE ASN ALA VAL ALA ALA GLU F289 H290 D291 L294 Q295 V296 G297 F298 A299 V310 E311 I315 L321 R367 D371 GLY SER SER GLY HIS HIS HIS HIS HIS HIS HIS HIS HIS

- Molecule 3: Capsular biosynthesis protein

Chain G: 56% 11% 33%

MET GLY LYS ILE HIS MET LYS L5 V6 S7 L18 I44 T45 V46 R47 Q48 T49 S50 SER ASN ALA PRO THR GLY MET SER GLY ALA ALA LEU LEU LEU GLY LEU THR PRO A71 S72 R73 C77 Y78 L79 L92 H101 T104 R107 V130 D135 D136

G139 L140 V145 L171 S172 R199 Q200 L201 I202 A203 F204 GLN ALA LYS HIS LYS LEU LEU ASP LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU LEU GLN ALA LEU THR ARG GLN GLU GLU ALA GLU LEU ARG ASN ALA LEU THR TYR LEU ASN GLU ASP SER

TYR GLN VAL LYS ALA LEU ARG SER GLN ILE ASN ALA LEU ARG GLN ILE ASP GLU GLU ARG LEU ARG ALA ALA THR ALA GLY LYS ASN GLY ARG ILE ASN ALA VAL ALA GLU F289 H290 D291 L292 Q293 L294 Q295 F298 Y303 K304 L307 E311 R314 L321

V326 R340 Y343 A346 V350 Y356 R367 D371 GLY SER GLY SER GLY HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 3: Capsular biosynthesis protein

Chain H:

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG LEU THR A11 M23 L24 V25 A26 T27 V28 R37 I44 S50 SER ASN ALA PRO THR GLY GLY MET SER GLY ALA ALA LEU LEU ALA GLY LEU THR PRO A71 E74 Y78 L79 V130 L133 L140 L141

T142 V145 Q146 G147 P150 V168 H173 R174 M175 A176 R177 A183 E186 L187 E188 R189 A197 K198 L201 I202 A203 F204 GLN ALA LYS HIS LYS LEU LEU ASP LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU LEU GLN ALA LEU THR ARG GLN

GLU ALA GLU LEU ARG ASN ALA LEU THR TYR LEU ASN GLU ASP SER TYR GLN VAL LYS ALA LEU ARG SER GLN ILE ASN ALA LEU ARG GLN ILE ASP GLU GLU ARG LEU ARG ALA ALA THR ALA GLY LYS ASN GLY ARG ILE ASN ALA VAL ALA GLU PHE H290 D291 L292 Q293 L294

Q295 V296 G297 F298 L321 V326 P333 L348 L349 V350 V351 C352 C353 L354 I355 Y356 G357 S360 H369 GLN ASP GLY SER GLY SER GLY SER HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 3: Capsular biosynthesis protein

Chain I:

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG LEU T10 L21 P22 M23 R37 I44 T45 V46 R47 S50 SER ASN ALA PRO THR GLY GLY MET SER GLY ALA ALA LEU LEU ALA GLY LEU THR P70 R73 L79 I83 L88 L133 M134 D135 D136

G139 L140 L141 T142 G147 L161 S164 M175 E178 A185 E188 E196 R199 Q200 L201 I202 A203 F204 GLN ALA LYS HIS LYS LEU LEU ASP LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU LEU GLN ALA LEU THR ARG GLN GLU GLU ALA LEU

LEU ARG ASN ALA LEU THR TYR LEU ASN GLU ASP SER TYR GLN VAL LYS ALA LEU ARG SER GLN ILE ASN ALA LEU ARG GLN ILE ASP GLU GLU ARG LEU ARG ALA ALA THR ALA GLY LYS ASN GLY ARG ILE ASN ALA VAL ALA ALA GLU PHE HIS D291 L294 G297 L307

V310 E311 I315 L324 V325 V326 L348 L349 V350 V351 L354 V363 A364 T365 ILE ARG ASP HIS GLN ASP GLY SER GLY SER GLY SER GLY HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 3: Capsular biosynthesis protein

Chain J:

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG **L9** **W16** **A17** **L18** **V19** **Y20** **I44** **R47** **S50** SER ASN ALA PRO THR GLY GLY MET SER GLY ALA ALA LEU LEU ALA GLY LEU THR **P70** **A71** **S72** **R73** **E74** **D75** **I83** **L88** **H101** **T104** **D135** **D136**

I137 **C138** **G139** **I160** **S164** **N169** **E178** **Q181** **T191** **K198** **I202** **A203** **F204** GLN ALA LYS HIS LYS LEU LEU ASP PRO LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU GLU GLN LEU GLN ALA LEU ALA LEU THR ARG GLN GLU ALA GLU LEU ARG ASN ALA LEU THR

TYR LEU ASN GLU ASP SER TYR GLN VAL LYS ALA LEU ARG SER GLN ILE ILE ASN ALA LEU ARG GLN ILE ASP GLN ILE ASP GLU GLU ARG LEU ARG ALA ALA THR ALA GLY LYS LYS ASN GLY ASP ARG ILE ASN ALA VAL ALA ALA GLU **F289** **H290** **D291** **L292** **V296** **G297** **F298** **D301** **A302** **Y303** **K304** **L307**

E311 **I315** **R319** **K322** **S323** **L324** **V325** **V326** **R340** **R341** **W342** **Y343** **D368** **D371** GLY SER GLY GLY SER HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 3: Capsular biosynthesis protein

Chain K:

54%   10%   36%

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG LEU THR ALA LYS **R13** **L14** **Q15** **F30** **S34** **V39** **I44** **T49** **S50** SER ASN ALA PRO THR GLY GLY MET SER GLY ALA ALA LEU LEU ALA GLY LEU THR PRO **A71** **C77** **Y78** **G87** **K91** **V130**

V145 **Q146** **P150** **E163** **R166** **E170** **L171** **S172** **H173** **R174** **M175** **Q181** **F182** **A183** **E184** **Q200** **L201** **I202** ALA PHE GLN ALA LYS HIS LYS LEU LEU ASP PRO LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU GLU GLN LEU GLN ALA LEU ALA LEU THR ARG GLN GLU ALA GLU LEU

ARG ASN ALA LEU THR TYR LEU ASN GLU ASP SER TYR GLN VAL LYS ALA LEU ARG SER GLN ILE ILE ASN ALA LEU ARG GLN ILE ASP GLU GLU ARG LEU ARG ALA ALA THR ALA GLY LYS ASN GLY ASP ARG ILE ASN ALA VAL ALA ALA GLU PHE HIS **D291** **L292** **Q293** **L294** **F298** **A306**

V310 **R314** **I315** **L321** **L324** **V325** **V326** **P333** **L354** **D371** GLY SER GLY GLY SER HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 3: Capsular biosynthesis protein

Chain L:

56%   9%   •   35%

MET GLY LYS ILE HIS MET LYS LEU VAL SER ARG LEU **T10** **L14** **Q15** **W16** **V19** **Y20** **L21** **P22** **M23** **L24** **T27** **V28** **L31** **I44** **S50** SER ASN ALA PRO THR GLY GLY MET SER GLY ALA ALA LEU LEU ALA GLY LEU THR PRO **A71** **L79** **Q80** **I83**

L88 **H101** **L110** **L133** **T142** **V145** **E149** **L156** **V168** **M169** **E170** **H173** **R174** **M175** **F182** **L187** **E196** **R199** **I202** **A203** **F204** GLN ALA LYS HIS LYS LEU LEU ASP PRO LEU ALA GLN ALA GLN ALA THR GLY THR LEU THR ALA GLU GLU GLN LEU GLN ALA

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

H290 **D291** **L292** **Q293** **L294** **F298** **A299** **E300** **K304** **L307** **V310** **V326** **L348** **L354** **I355** **S360** **V363** **A364** **R367** ASP HIS GLN ASP SER GLY SER GLY SER HIS HIS HIS HIS HIS HIS HIS HIS

4   Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36731	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 $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	36.066	Depositor
Minimum map value	-16.932	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	0.862	Depositor
Recommended contour level	4	Depositor
Map size (Å)	388.80002, 388.80002, 388.80002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	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: ATP, MG

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	0.10	0/1743	0.27	0/2351
1	B	0.10	0/1743	0.29	0/2351
2	C	0.13	0/2118	0.33	0/2887
2	D	0.12	0/2089	0.30	0/2848
3	E	0.12	0/2113	0.28	0/2863
3	F	0.21	0/2199	0.31	0/2978
3	G	0.13	0/2181	0.29	0/2955
3	H	0.12	0/2105	0.29	0/2852
3	I	0.13	0/2071	0.30	0/2807
3	J	0.13	0/2157	0.31	0/2923
3	K	0.13	0/2080	0.30	0/2819
3	L	0.24	0/2093	0.39	0/2836
All	All	0.15	0/24692	0.31	0/33470

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (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	1708	0	1670	34	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1708	0	1669	28	0
2	C	2062	0	2187	39	0
2	D	2033	0	2151	37	0
3	E	2073	0	2090	34	0
3	F	2158	0	2180	31	0
3	G	2140	0	2159	31	0
3	H	2065	0	2081	20	0
3	I	2032	0	2054	22	0
3	J	2115	0	2129	31	0
3	K	2042	0	2055	26	0
3	L	2054	0	2077	24	0
4	A	31	0	12	0	0
4	B	31	0	12	1	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
All	All	24254	0	24526	331	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 7.

All (331) 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)
2:C:95:LEU:HD13	2:C:117:VAL:HB	1.70	0.73
3:K:200:GLN:HE22	3:K:292:LEU:HD22	1.54	0.72
3:E:187:LEU:HD11	3:E:307:LEU:HD22	1.72	0.70
3:F:28:VAL:O	3:F:32:VAL:HB	1.92	0.70
1:B:8:THR:HG22	1:B:23:ASN:H	1.57	0.69
3:H:23:MET:HE2	3:H:349:LEU:HB2	1.76	0.67
3:J:44:ILE:HD12	3:J:324:LEU:HD11	1.77	0.67
3:G:304:LYS:HA	3:G:307:LEU:HD12	1.76	0.67
3:L:21:LEU:HB3	3:L:22:PRO:HD3	1.78	0.66
3:K:201:LEU:HD13	3:K:292:LEU:HD11	1.78	0.66
3:J:137:ILE:HD12	3:J:137:ILE:H	1.60	0.65
1:A:4:LEU:HD11	1:A:7:LEU:HB2	1.79	0.65
2:D:89:ARG:O	2:D:93:THR:HG23	1.98	0.64
2:C:30:ARG:HE	2:C:31:GLU:HG2	1.62	0.64
3:G:135:ASP:O	3:G:139:GLY:N	2.30	0.63
3:E:17:ALA:HA	3:E:21:LEU:HD23	1.81	0.62
2:D:153:GLU:OE2	2:D:153:GLU:N	2.32	0.62
1:A:184:MET:HB3	1:A:212:ILE:HD11	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:68:ILE:O	2:C:109:ARG:NH2	2.32	0.61
1:A:140:MET:O	1:A:171:ARG:NH2	2.33	0.61
3:I:44:ILE:HD12	3:I:324:LEU:HD11	1.82	0.61
2:C:110:GLN:NE2	3:G:371:ASP:OD1	2.34	0.60
3:E:134:MET:HG2	3:E:141:LEU:HD12	1.84	0.60
1:A:83:THR:O	1:A:87:ASN:ND2	2.31	0.59
1:B:40:ASN:ND2	4:B:301:ATP:O1G	2.35	0.59
2:C:99:ILE:HD11	2:C:267:LEU:HB3	1.85	0.59
3:K:130:VAL:HG22	3:K:145:VAL:HG22	1.84	0.59
2:C:178:GLU:N	2:C:178:GLU:OE2	2.36	0.59
3:F:72:SER:OG	3:F:73:ARG:N	2.36	0.59
1:B:112:PHE:O	1:B:163:LYS:NZ	2.36	0.58
2:C:184:ALA:HA	2:C:187:ARG:HB2	1.86	0.58
1:A:85:ARG:HG2	1:A:89:LYS:HE3	1.85	0.58
2:D:235:ARG:HH21	3:J:137:ILE:HD13	1.68	0.58
3:F:291:ASP:OD1	3:F:291:ASP:N	2.36	0.58
1:A:1:MET:N	1:A:30:ASP:OD1	2.36	0.57
3:H:173:HIS:HB3	3:H:177:ARG:HH21	1.68	0.57
3:K:44:ILE:HG22	3:K:326:VAL:HG12	1.86	0.57
1:B:83:THR:HG22	1:B:85:ARG:H	1.68	0.57
2:C:89:ARG:O	2:C:93:THR:HG23	2.04	0.56
2:C:54:ILE:O	2:C:58:THR:HG23	2.05	0.56
3:L:79:LEU:HD21	3:L:168:VAL:HG23	1.88	0.56
1:A:22:ARG:HG3	1:A:23:ASN:H	1.70	0.56
3:I:135:ASP:O	3:I:139:GLY:N	2.39	0.56
1:A:2:ILE:HG23	1:A:28:PHE:HB2	1.88	0.56
3:I:44:ILE:HG22	3:I:326:VAL:HG13	1.87	0.56
3:G:44:ILE:HG22	3:G:326:VAL:HG12	1.88	0.55
3:E:49:THR:OG1	3:F:179:GLN:NE2	2.39	0.55
1:B:147:TYR:OH	1:B:171:ARG:NH1	2.39	0.55
2:C:103:ARG:NH1	2:C:267:LEU:O	2.35	0.55
3:F:187:LEU:HD22	3:F:310:VAL:HG11	1.89	0.55
2:C:50:PRO:O	2:C:54:ILE:HG23	2.07	0.55
1:A:85:ARG:O	1:A:89:LYS:HG2	2.07	0.55
1:B:48:MET:HE2	1:B:178:ILE:HG22	1.87	0.55
3:F:14:LEU:O	3:F:18:LEU:HB2	2.06	0.55
3:E:86:MET:HE3	3:E:90:GLN:HG3	1.88	0.55
1:A:81:SER:H	1:A:124:LYS:HZ1	1.54	0.55
3:K:44:ILE:HD12	3:K:324:LEU:HD11	1.88	0.55
1:A:89:LYS:HD2	1:A:102:MET:HE3	1.88	0.54
1:B:183:ASN:OD1	1:B:184:MET:N	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:75:ASP:OD1	3:J:322:LYS:NZ	2.31	0.54
1:A:212:ILE:O	1:A:216:GLN:HG2	2.07	0.54
3:F:46:VAL:O	3:F:47:ARG:NH1	2.40	0.54
3:G:47:ARG:NH2	3:H:78:TYR:OH	2.41	0.54
2:C:174:VAL:HG23	2:C:267:LEU:HD11	1.88	0.54
3:G:311:GLU:OE2	3:G:314:ARG:NH1	2.39	0.54
2:C:31:GLU:OE1	2:C:120:ARG:NE	2.35	0.54
3:G:291:ASP:HA	3:G:294:LEU:HD12	1.90	0.54
2:D:193:LEU:HA	2:D:196:VAL:HG22	1.89	0.53
2:D:110:GLN:NE2	3:K:371:ASP:OD1	2.41	0.53
3:F:163:GLU:OE2	3:F:166:ARG:NH2	2.41	0.53
3:L:304:LYS:HA	3:L:307:LEU:HG	1.91	0.53
3:J:135:ASP:O	3:J:139:GLY:N	2.41	0.53
3:G:47:ARG:NH1	3:H:74:GLU:OE2	2.36	0.53
1:B:91:VAL:HG21	1:B:138:LEU:HD21	1.91	0.53
1:B:44:LYS:HB3	1:B:180:VAL:HG21	1.91	0.53
2:D:94:ARG:O	2:D:120:ARG:NE	2.40	0.53
3:H:201:LEU:HD12	3:H:292:LEU:HG	1.91	0.53
3:E:201:LEU:HB2	3:E:296:VAL:HG21	1.91	0.52
3:I:46:VAL:O	3:I:47:ARG:NH1	2.42	0.52
3:K:315:ILE:HD12	3:K:315:ILE:H	1.74	0.52
2:C:103:ARG:NH2	2:C:177:ASN:OD1	2.42	0.52
3:J:291:ASP:N	3:J:291:ASP:OD1	2.42	0.52
3:G:130:VAL:HG22	3:G:145:VAL:HG22	1.91	0.52
3:F:9:LEU:O	3:F:367:ARG:NH2	2.43	0.52
3:H:23:MET:O	3:H:27:THR:HG23	2.09	0.52
3:H:25:VAL:HA	3:H:28:VAL:HG12	1.92	0.52
2:C:128:GLN:HA	2:C:131:VAL:HG12	1.90	0.52
3:E:160:ILE:O	3:E:164:SER:OG	2.27	0.52
3:J:47:ARG:NH2	3:K:78:TYR:OH	2.42	0.52
2:D:31:GLU:OE2	2:D:120:ARG:NH1	2.43	0.51
3:G:295:GLN:HA	3:G:298:PHE:CE2	2.45	0.51
3:L:187:LEU:HD22	3:L:310:VAL:HG11	1.93	0.51
3:J:169:ASN:ND2	3:J:322:LYS:O	2.40	0.51
3:G:73:ARG:NH2	3:G:136:ASP:O	2.43	0.51
3:J:311:GLU:O	3:J:315:ILE:HG22	2.09	0.51
3:L:133:LEU:HB2	3:L:142:THR:HG23	1.91	0.51
3:F:311:GLU:O	3:F:315:ILE:HG22	2.11	0.51
1:A:38:GLY:HA3	1:A:44:LYS:HD3	1.92	0.51
3:I:70:PRO:HD2	3:I:73:ARG:HG2	1.92	0.51
1:B:153:MET:HE1	1:B:190:TYR:HE2	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:45:THR:HB	3:G:140:LEU:HD23	1.93	0.51
3:L:300:GLU:O	3:L:304:LYS:HE2	2.11	0.51
1:A:186:ASP:O	1:A:190:TYR:HB2	2.12	0.50
3:G:201:LEU:HD13	3:G:292:LEU:HD23	1.93	0.50
3:I:44:ILE:HD13	3:I:161:LEU:HD22	1.94	0.50
1:B:127:SER:H	1:B:130:MET:HE2	1.77	0.50
3:E:101:HIS:HE1	3:E:149:GLU:HG2	1.76	0.50
3:J:101:HIS:O	3:J:104:THR:OG1	2.25	0.50
2:D:46:VAL:O	2:D:49:GLU:HB3	2.12	0.50
1:A:156:GLY:HA3	1:A:160:PHE:HD2	1.77	0.50
2:C:89:ARG:HG3	2:C:190:LEU:HD13	1.93	0.50
3:H:37:ARG:HA	3:H:147:GLY:O	2.11	0.50
3:J:160:ILE:O	3:J:164:SER:OG	2.30	0.50
1:B:10:TRP:HB2	1:B:17:ARG:HB2	1.93	0.50
1:A:149:ILE:HG13	1:A:177:MET:HE3	1.92	0.50
3:G:48:GLN:NE2	3:G:321:LEU:O	2.44	0.50
3:L:291:ASP:N	3:L:291:ASP:OD1	2.44	0.50
3:F:10:THR:OG1	3:F:11:ALA:N	2.45	0.50
2:D:100:ASP:OD1	2:D:103:ARG:NH2	2.45	0.50
2:D:153:GLU:OE2	3:J:343:TYR:OH	2.27	0.50
3:F:162:GLU:OE2	3:F:166:ARG:NH1	2.42	0.49
3:H:197:ALA:HB1	3:H:296:VAL:HG22	1.94	0.49
3:I:311:GLU:O	3:I:315:ILE:HG12	2.11	0.49
3:J:340:ARG:HH22	3:J:342:TRP:HD1	1.60	0.49
2:C:206:ILE:HG13	2:C:207:PRO:HD2	1.93	0.49
2:C:177:ASN:HA	2:C:183:ARG:HH21	1.75	0.49
3:E:21:LEU:O	3:E:25:VAL:HG13	2.13	0.49
3:H:133:LEU:HB2	3:H:142:THR:HG23	1.94	0.49
1:B:4:LEU:HB3	1:B:7:LEU:HD22	1.94	0.49
3:E:169:ASN:ND2	3:E:322:LYS:O	2.35	0.49
1:B:94:ILE:HD12	2:D:23:VAL:HG22	1.95	0.49
3:J:303:TYR:O	3:J:307:LEU:HD13	2.13	0.49
3:K:315:ILE:HG23	3:L:182:PHE:HZ	1.78	0.49
3:F:321:LEU:H	3:F:321:LEU:HD12	1.78	0.48
2:C:176:THR:HG23	2:C:182:ALA:HB3	1.94	0.48
3:G:340:ARG:HG3	3:G:343:TYR:HB3	1.94	0.48
3:L:27:THR:O	3:L:31:LEU:HD12	2.12	0.48
3:I:196:GLU:OE2	3:I:199:ARG:NH1	2.46	0.48
2:D:83:ILE:HD13	2:D:131:VAL:HG12	1.95	0.48
2:D:93:THR:O	2:D:97:GLU:HG2	2.13	0.48
3:F:133:LEU:HB2	3:F:142:THR:OG1	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:56:VAL:HG13	2:D:57:MET:SD	2.53	0.48
3:K:172:SER:HB2	3:K:321:LEU:HD13	1.95	0.48
3:E:340:ARG:O	3:E:344:ASN:ND2	2.47	0.48
1:A:79:GLN:HB2	2:C:105:LEU:HD21	1.95	0.48
2:C:91:LEU:O	2:C:95:LEU:HB2	2.14	0.48
3:I:134:MET:HG2	3:I:141:LEU:HD12	1.96	0.48
1:A:4:LEU:HD11	1:A:7:LEU:HD12	1.94	0.48
3:I:73:ARG:NH2	3:I:136:ASP:O	2.46	0.48
3:K:163:GLU:OE2	3:K:166:ARG:NH2	2.45	0.48
1:B:81:SER:HA	1:B:122:PRO:HB3	1.96	0.47
3:E:48:GLN:NE2	3:E:321:LEU:O	2.47	0.47
3:F:82:TYR:O	3:F:85:SER:OG	2.28	0.47
3:H:44:ILE:HG22	3:H:326:VAL:HA	1.96	0.47
1:A:7:LEU:HD11	1:A:50:LEU:HD13	1.95	0.47
2:D:45:TRP:O	2:D:49:GLU:N	2.47	0.47
3:G:101:HIS:O	3:G:104:THR:OG1	2.31	0.47
3:K:306:ALA:O	3:K:310:VAL:HG23	2.15	0.47
1:A:140:MET:HE3	1:A:167:VAL:HG12	1.96	0.47
3:G:321:LEU:HD12	3:G:321:LEU:H	1.79	0.47
1:B:7:LEU:HA	1:B:60:GLY:HA3	1.97	0.47
3:I:79:LEU:HD22	3:I:164:SER:HB3	1.97	0.47
1:A:140:MET:HE1	1:A:168:PHE:HD1	1.80	0.47
3:K:30:PHE:O	3:K:34:SER:OG	2.32	0.47
2:D:100:ASP:OD2	2:D:183:ARG:NH2	2.47	0.46
3:E:172:SER:HB3	3:E:321:LEU:HD13	1.96	0.46
3:G:49:THR:HA	3:H:175:MET:HE3	1.97	0.46
3:J:44:ILE:HG22	3:J:326:VAL:HG12	1.97	0.46
1:B:93:ARG:NH1	3:J:368:ASP:OD2	2.48	0.46
2:C:98:ALA:HB3	2:C:117:VAL:HG12	1.98	0.46
3:E:314:ARG:NH1	3:F:189:ARG:HH22	2.14	0.46
3:I:348:LEU:HA	3:I:351:VAL:HG12	1.97	0.46
3:J:47:ARG:HB3	3:K:175:MET:HE1	1.98	0.46
3:I:133:LEU:HB2	3:I:142:THR:HG23	1.97	0.46
3:J:70:PRO:HB2	3:J:71:ALA:H	1.59	0.46
3:J:319:ARG:HB3	3:K:182:PHE:CE1	2.50	0.46
3:H:321:LEU:HD12	3:H:321:LEU:H	1.81	0.46
3:J:16:TRP:HA	3:J:20:TYR:HD2	1.81	0.46
3:L:44:ILE:HG22	3:L:326:VAL:HA	1.98	0.46
1:A:7:LEU:HA	1:A:60:GLY:HA3	1.98	0.46
2:D:251:LEU:HD13	3:K:354:LEU:HD21	1.98	0.46
3:F:73:ARG:HD3	3:F:73:ARG:HA	1.76	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:150:ASP:HA	1:A:180:VAL:HG13	1.97	0.46
2:C:97:GLU:HB2	2:C:120:ARG:HH12	1.81	0.46
2:D:176:THR:HG21	2:D:183:ARG:HE	1.81	0.46
3:E:44:ILE:HG22	3:E:326:VAL:HA	1.97	0.46
3:I:175:MET:O	3:I:178:GLU:HG3	2.14	0.46
3:K:181:GLN:O	3:K:184:GLU:HG3	2.15	0.46
3:E:130:VAL:HG22	3:E:145:VAL:HG22	1.98	0.46
3:K:39:VAL:HG22	3:K:146:GLN:HG2	1.99	0.45
3:G:7:SER:HA	3:G:367:ARG:HH22	1.81	0.45
3:I:23:MET:HE2	3:I:349:LEU:HD23	1.98	0.45
3:J:191:THR:HG22	3:J:303:TYR:HE1	1.81	0.45
2:C:58:THR:O	2:C:62:SER:OG	2.24	0.45
3:E:27:THR:O	3:E:31:LEU:HG	2.16	0.45
3:F:79:LEU:HD23	3:F:79:LEU:HA	1.73	0.45
2:C:101:SER:OG	2:C:102:ASN:OD1	2.34	0.45
3:J:301:ASP:HA	3:J:304:LYS:HG3	1.98	0.45
3:E:37:ARG:HA	3:E:147:GLY:O	2.16	0.45
3:G:346:ALA:O	3:G:350:VAL:HG23	2.16	0.45
2:C:27:LEU:HD23	2:C:116:THR:HA	1.99	0.45
2:D:237:LEU:HD12	2:D:237:LEU:H	1.81	0.45
3:K:170:GLU:HA	3:K:173:HIS:HB2	1.99	0.45
3:K:314:ARG:HG2	3:K:314:ARG:HH11	1.82	0.45
3:I:83:ILE:HA	3:I:88:LEU:HD23	1.98	0.45
3:L:170:GLU:HA	3:L:173:HIS:HB2	1.98	0.45
2:D:33:LYS:HA	2:D:33:LYS:HD2	1.75	0.45
2:D:171:PHE:HB2	2:D:256:ALA:HB2	1.98	0.45
3:H:130:VAL:HG22	3:H:145:VAL:HG22	1.98	0.45
1:A:90:PHE:HE1	2:C:27:LEU:HD12	1.82	0.44
2:D:78:LEU:O	2:D:82:LEU:HB2	2.17	0.44
3:F:131:GLU:OE2	3:F:144:ARG:HD3	2.17	0.44
3:I:37:ARG:HA	3:I:147:GLY:O	2.16	0.44
1:A:184:MET:HA	1:A:184:MET:HE2	1.98	0.44
3:G:314:ARG:NH2	3:H:189:ARG:HH22	2.15	0.44
2:C:200:ILE:HD13	2:C:200:ILE:HA	1.85	0.44
3:F:21:LEU:O	3:F:25:VAL:HG13	2.17	0.44
1:A:168:PHE:CZ	1:A:177:MET:HB2	2.53	0.44
2:C:168:LEU:HD23	2:C:168:LEU:HA	1.80	0.44
3:F:92:LEU:HD13	3:F:156:LEU:HD11	1.99	0.44
1:B:2:ILE:HB	1:B:28:PHE:HD2	1.82	0.44
2:D:211:LEU:O	2:D:215:GLN:HG2	2.17	0.44
2:C:164:LEU:HB2	2:C:249:ALA:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:193:LEU:HA	2:C:196:VAL:HG22	1.99	0.44
3:E:192:ALA:O	3:E:195:GLN:HG3	2.17	0.44
3:L:101:HIS:HE1	3:L:149:GLU:HG2	1.83	0.44
1:B:177:MET:HE3	1:B:179:LEU:HB2	2.00	0.43
1:B:186:ASP:HA	1:B:189:GLU:HG2	2.00	0.43
2:D:30:ARG:HH11	2:D:31:GLU:HA	1.82	0.43
2:D:89:ARG:HG3	2:D:190:LEU:HD22	2.00	0.43
3:E:304:LYS:HE2	3:E:304:LYS:HA	2.00	0.43
3:K:49:THR:HG22	3:L:175:MET:HB3	1.99	0.43
1:A:6:ASN:OD1	1:A:25:ASN:ND2	2.44	0.43
3:L:24:LEU:HA	3:L:24:LEU:HD13	1.75	0.43
2:D:47:LEU:HD23	2:D:47:LEU:HA	1.81	0.43
1:B:10:TRP:HB3	1:B:19:TYR:CD1	2.54	0.43
3:E:92:LEU:HD13	3:E:156:LEU:HD11	2.00	0.43
1:B:103:LEU:HD23	1:B:107:ARG:HH21	1.82	0.43
2:C:47:LEU:HD23	2:C:47:LEU:HA	1.83	0.43
1:B:156:GLY:HA3	1:B:160:PHE:HD2	1.83	0.43
2:C:167:SER:OG	2:C:252:SER:OG	2.25	0.43
2:D:241:ASN:OD1	2:D:241:ASN:N	2.52	0.43
2:C:188:ILE:HG22	2:D:188:ILE:HD13	2.00	0.43
3:F:111:PHE:O	3:F:125:TYR:OH	2.36	0.43
3:I:45:THR:HG23	3:I:325:VAL:HG13	2.00	0.43
3:K:150:PRO:HB3	3:K:333:PRO:HG2	2.01	0.43
2:D:98:ALA:O	2:D:100:ASP:N	2.48	0.42
3:E:311:GLU:OE2	3:E:314:ARG:NH2	2.48	0.42
3:I:134:MET:HE1	3:I:139:GLY:HA2	2.01	0.42
2:D:87:MET:HE2	2:D:162:ILE:HG12	2.00	0.42
3:L:79:LEU:O	3:L:80:GLN:C	2.62	0.42
2:D:207:PRO:HB2	2:D:209:GLN:HE22	1.84	0.42
3:F:138:CYS:SG	3:G:77:CYS:HB3	2.58	0.42
3:G:79:LEU:HD23	3:G:79:LEU:HA	1.84	0.42
3:I:307:LEU:HA	3:I:310:VAL:HG12	2.01	0.42
3:F:18:LEU:HD23	3:F:18:LEU:HA	1.88	0.42
3:F:197:ALA:HB1	3:F:296:VAL:HG12	2.01	0.42
3:G:303:TYR:CZ	3:G:307:LEU:HD11	2.55	0.42
3:L:23:MET:HE3	3:L:23:MET:HB3	1.73	0.42
2:D:216:LEU:O	2:D:244:TYR:OH	2.33	0.42
3:F:194:LEU:HA	3:F:299:ALA:HB1	2.01	0.42
3:L:300:GLU:HG2	3:L:304:LYS:NZ	2.35	0.42
2:D:53:HIS:O	2:D:57:MET:HG2	2.20	0.42
3:E:79:LEU:HD22	3:E:164:SER:HB3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:321:LEU:HD12	3:E:321:LEU:H	1.85	0.42
3:I:185:ALA:HA	3:I:188:GLU:HG3	2.02	0.42
3:J:292:LEU:O	3:J:296:VAL:HG22	2.18	0.42
3:H:79:LEU:HD21	3:H:168:VAL:HG23	2.02	0.42
3:F:134:MET:HB2	3:F:141:LEU:HD12	2.02	0.42
3:G:172:SER:HB3	3:G:321:LEU:HD13	2.02	0.42
3:K:291:ASP:N	3:K:293:GLN:OE1	2.53	0.42
3:L:19:VAL:C	3:L:22:PRO:HD2	2.45	0.42
3:L:19:VAL:O	3:L:22:PRO:HD2	2.18	0.42
1:A:146:TYR:HD2	1:A:178:ILE:HG13	1.85	0.42
2:D:193:LEU:HA	2:D:193:LEU:HD23	1.93	0.42
3:K:13:ARG:N	3:K:15:GLN:OE1	2.52	0.42
3:G:18:LEU:HD23	3:G:356:TYR:HA	2.00	0.41
3:L:145:VAL:HG11	3:L:156:LEU:HB3	2.02	0.41
1:A:7:LEU:HD23	1:A:8:THR:N	2.34	0.41
1:B:165:ARG:NH2	1:B:189:GLU:O	2.51	0.41
2:D:49:GLU:O	2:D:53:HIS:ND1	2.52	0.41
3:E:366:ILE:HD12	3:E:366:ILE:HA	1.92	0.41
3:J:138:CYS:HB3	3:K:77:CYS:HB3	2.01	0.41
3:L:16:TRP:HA	3:L:20:TYR:CE2	2.55	0.41
3:F:108:ASP:HA	3:F:109:PRO:HD3	1.95	0.41
3:J:202:ILE:HD12	3:J:202:ILE:HA	1.97	0.41
3:L:83:ILE:HA	3:L:88:LEU:HD23	2.01	0.41
1:A:157:ASP:CG	1:B:40:ASN:H	2.28	0.41
1:B:1:MET:O	1:B:27:ARG:NH1	2.53	0.41
3:E:82:TYR:O	3:E:85:SER:OG	2.35	0.41
3:F:294:LEU:HG	3:F:298:PHE:CZ	2.55	0.41
3:G:5:LEU:HB3	3:G:6:VAL:H	1.66	0.41
3:G:171:LEU:HD23	3:G:171:LEU:HA	1.88	0.41
2:D:50:PRO:O	2:D:54:ILE:HG23	2.20	0.41
3:E:367:ARG:HA	3:E:367:ARG:HD3	1.72	0.41
3:G:107:ARG:HA	3:G:107:ARG:HD2	1.78	0.41
3:L:24:LEU:O	3:L:28:VAL:HG23	2.20	0.41
1:A:48:MET:HE3	1:A:48:MET:HB3	2.00	0.41
3:K:87:GLY:O	3:K:91:LYS:HG3	2.21	0.41
2:C:57:MET:HE2	2:C:200:ILE:HG23	2.02	0.41
2:C:125:ILE:HG13	2:C:126:SER:N	2.36	0.41
3:H:140:LEU:HD23	3:H:140:LEU:HA	1.93	0.41
3:J:340:ARG:HB3	3:J:343:TYR:HB3	2.03	0.41
1:A:81:SER:N	1:A:124:LYS:HZ1	2.18	0.41
2:C:235:ARG:NE	3:F:137:ILE:HD11	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:242:LEU:C	2:C:245:PRO:HD2	2.46	0.41
3:E:140:LEU:HD23	3:E:140:LEU:HA	1.93	0.41
3:G:92:LEU:HD23	3:G:92:LEU:HA	1.90	0.41
3:I:196:GLU:HA	3:I:199:ARG:HG2	2.03	0.41
3:J:298:PHE:HA	3:J:301:ASP:OD1	2.21	0.41
3:E:302:ALA:O	3:E:305:LEU:HG	2.21	0.41
3:F:101:HIS:HE1	3:F:149:GLU:HG2	1.86	0.41
3:G:47:ARG:HD3	3:G:47:ARG:HA	1.90	0.41
3:H:150:PRO:HB3	3:H:333:PRO:HG2	2.03	0.41
3:H:183:ALA:O	3:H:186:GLU:HG3	2.21	0.41
1:A:3:GLU:HG3	1:A:27:ARG:NH1	2.36	0.40
2:D:211:LEU:HG	2:D:212:PRO:HD3	2.03	0.40
3:E:83:ILE:HA	3:E:88:LEU:HD23	2.04	0.40
3:E:15:GLN:HB2	3:E:356:TYR:CE1	2.56	0.40
3:J:73:ARG:HD2	3:J:73:ARG:HA	1.70	0.40
3:E:300:GLU:O	3:E:304:LYS:HG2	2.21	0.40
3:E:348:LEU:HD12	3:E:348:LEU:HA	1.88	0.40
3:L:196:GLU:O	3:L:199:ARG:HG2	2.22	0.40
1:B:2:ILE:HG23	1:B:64:THR:HG22	2.04	0.40
2:C:174:VAL:HG21	2:C:260:TYR:HA	2.02	0.40
3:E:136:ASP:OD1	3:E:136:ASP:N	2.41	0.40
3:H:291:ASP:OD1	3:H:291:ASP:N	2.52	0.40
3:J:18:LEU:HA	3:J:18:LEU:HD23	1.85	0.40
3:J:83:ILE:HA	3:J:88:LEU:HD23	2.04	0.40
1:B:83:THR:HG22	1:B:85:ARG:N	2.35	0.40
3:J:178:GLU:HA	3:J:181:GLN:OE1	2.21	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	215/234 (92%)	207 (96%)	8 (4%)	0	100	100
1	B	215/234 (92%)	205 (95%)	10 (5%)	0	100	100
2	C	257/274 (94%)	248 (96%)	9 (4%)	0	100	100
2	D	253/274 (92%)	247 (98%)	6 (2%)	0	100	100
3	E	249/390 (64%)	244 (98%)	5 (2%)	0	100	100
3	F	259/390 (66%)	251 (97%)	8 (3%)	0	100	100
3	G	257/390 (66%)	251 (98%)	6 (2%)	0	100	100
3	H	248/390 (64%)	244 (98%)	4 (2%)	0	100	100
3	I	245/390 (63%)	242 (99%)	3 (1%)	0	100	100
3	J	254/390 (65%)	249 (98%)	5 (2%)	0	100	100
3	K	245/390 (63%)	243 (99%)	2 (1%)	0	100	100
3	L	247/390 (63%)	242 (98%)	5 (2%)	0	100	100
All	All	2944/4136 (71%)	2873 (98%)	71 (2%)	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	180/194 (93%)	180 (100%)	0	100	100
1	B	180/194 (93%)	180 (100%)	0	100	100
2	C	219/232 (94%)	218 (100%)	1 (0%)	86	92
2	D	215/232 (93%)	215 (100%)	0	100	100
3	E	221/325 (68%)	221 (100%)	0	100	100
3	F	231/325 (71%)	231 (100%)	0	100	100
3	G	229/325 (70%)	229 (100%)	0	100	100
3	H	220/325 (68%)	220 (100%)	0	100	100
3	I	217/325 (67%)	217 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	J	226/325 (70%)	225 (100%)	1 (0%)	89	94
3	K	219/325 (67%)	219 (100%)	0	100	100
3	L	219/325 (67%)	216 (99%)	3 (1%)	62	81
All	All	2576/3452 (75%)	2571 (100%)	5 (0%)	91	96

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	C	95	LEU
3	J	296	VAL
3	L	23	MET
3	L	24	LEU
3	L	110	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	151	GLN
1	A	174	GLN
1	A	185	ASN
1	A	201	GLN
1	B	6	ASN
1	B	176	ASN
1	B	182	HIS
3	E	200	GLN
3	F	48	GLN
3	F	179	GLN
3	F	295	GLN
3	K	119	GLN
3	K	200	GLN
3	L	119	GLN
3	L	157	ASN
3	L	169	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 4 ligands modelled in this entry, 2 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	$\#|Z| > 2$
4	ATP	A	301	-	28,33,33	0.63	0	34,52,52	0.59	1 (2%)
4	ATP	B	301	5	28,33,33	0.65	0	34,52,52	0.60	1 (2%)

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
4	ATP	A	301	-	-	7/18/38/38	0/3/3/3
4	ATP	B	301	5	-	6/18/38/38	0/3/3/3

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	301	ATP	C5-C6-N6	2.31	123.83	120.31
4	B	301	ATP	C5-C6-N6	2.30	123.82	120.31

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	301	ATP	PB-O3B-PG-O2G
4	A	301	ATP	C5'-O5'-PA-O3A
4	B	301	ATP	C5'-O5'-PA-O3A
4	A	301	ATP	O4'-C4'-C5'-O5'
4	B	301	ATP	O4'-C4'-C5'-O5'
4	A	301	ATP	C3'-C4'-C5'-O5'
4	B	301	ATP	C3'-C4'-C5'-O5'
4	B	301	ATP	PB-O3B-PG-O1G
4	A	301	ATP	PB-O3B-PG-O3G
4	B	301	ATP	PB-O3B-PG-O2G
4	A	301	ATP	C5'-O5'-PA-O1A
4	B	301	ATP	C5'-O5'-PA-O1A
4	A	301	ATP	PB-O3B-PG-O1G

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	301	ATP	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 ATP A 301

Bond lengths

Bond angles

Torsions

Rings

Ligand ATP B 301

Bond lengths

Bond angles

Torsions

Rings
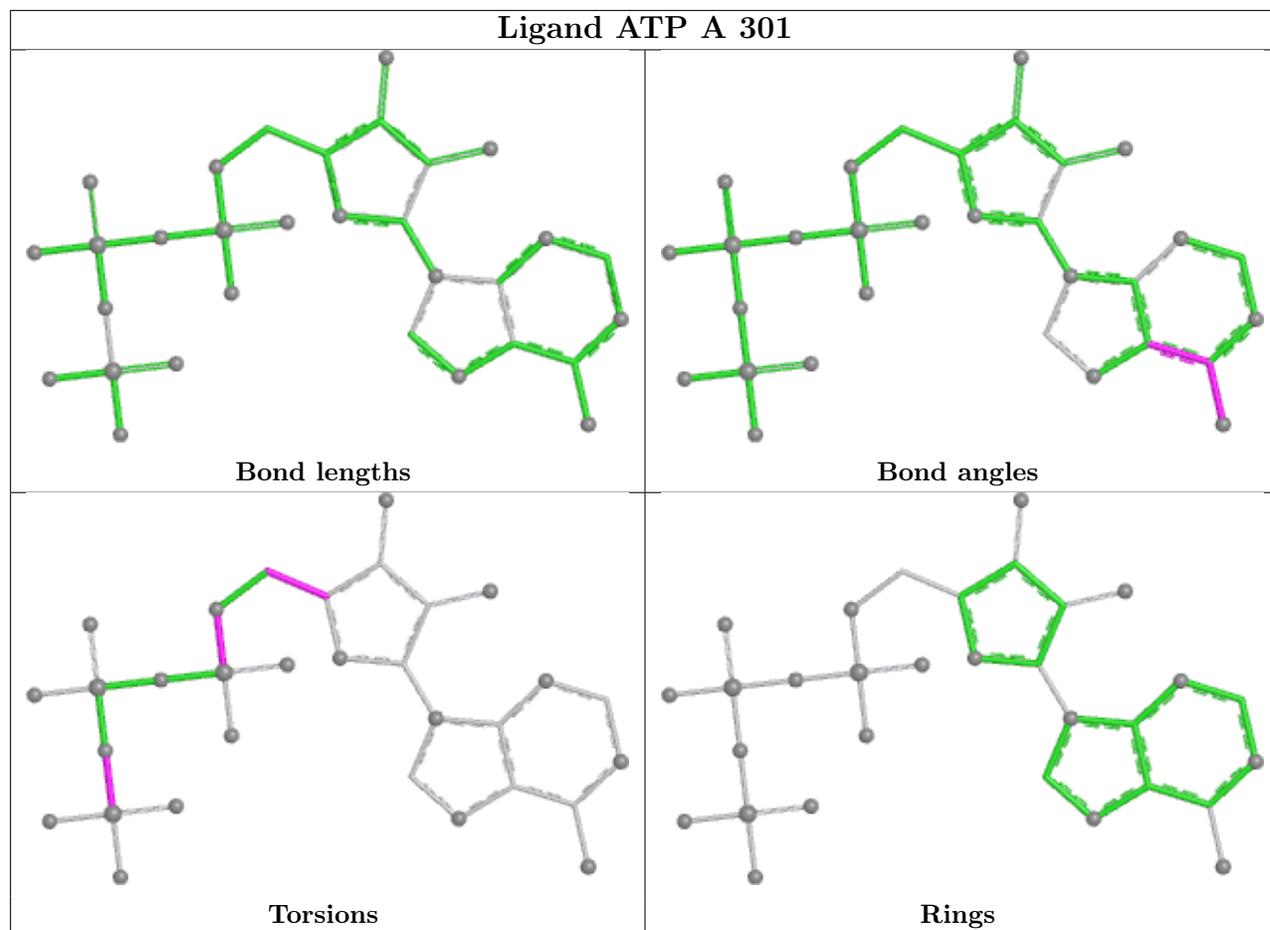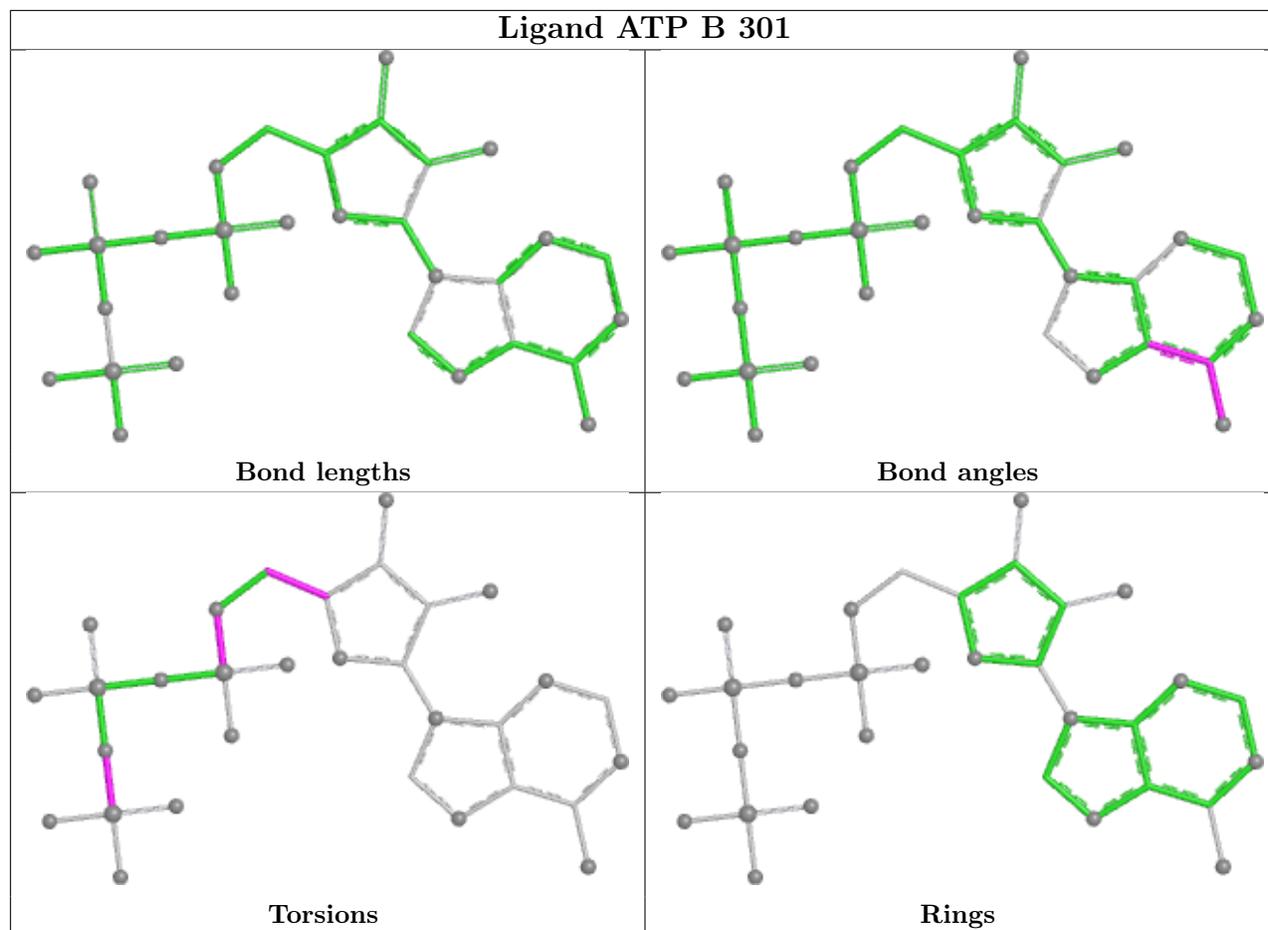
5.7 Other polymers ⓘ

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-41592. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections ⓘ

6.1.1 Primary map

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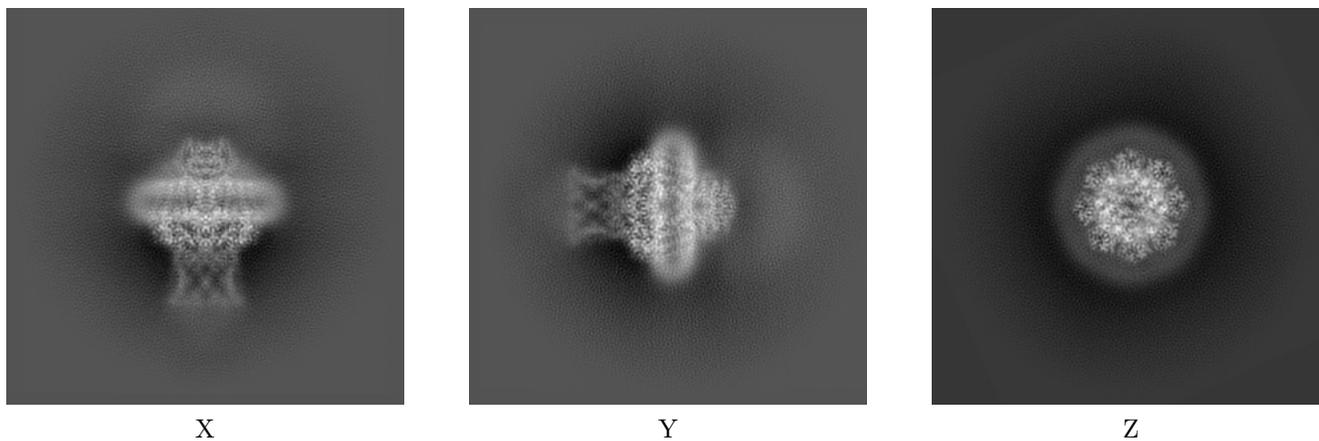
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

6.2.1 Primary map

| X Index: 180 | Y Index: 180 | Z Index: 180 |
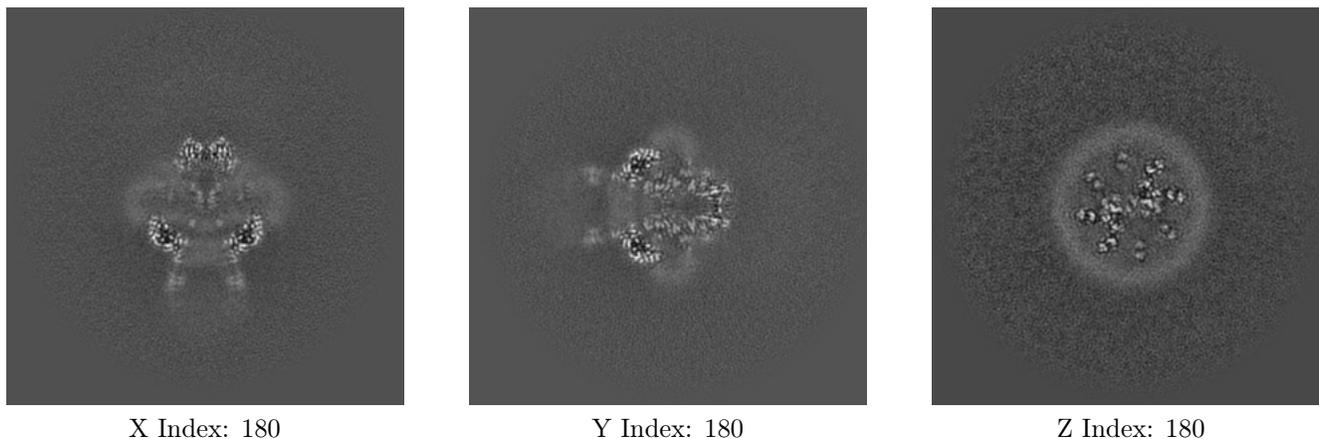
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ
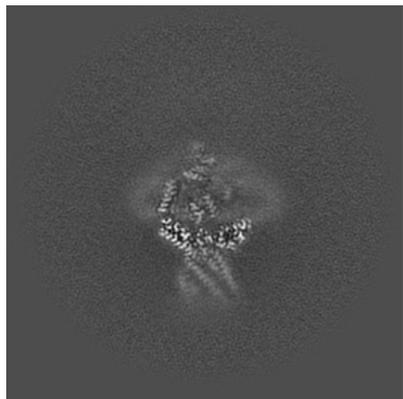
6.3.1 Primary map
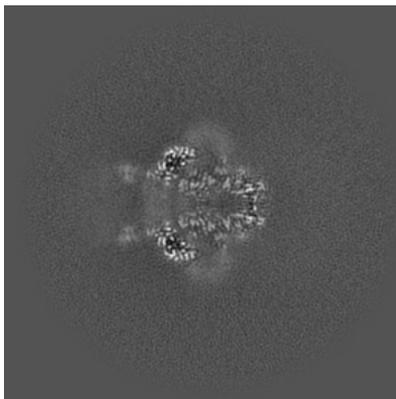
| X Index: 156 | Y Index: 180 | Z Index: 151 |
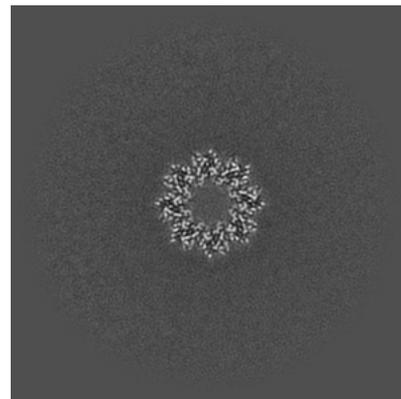
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map

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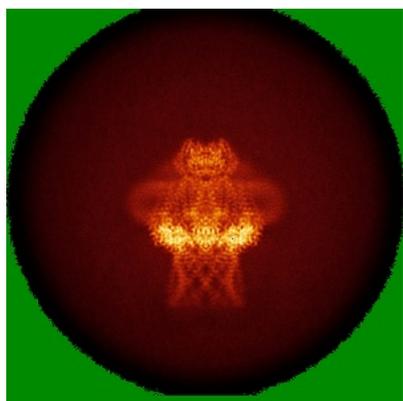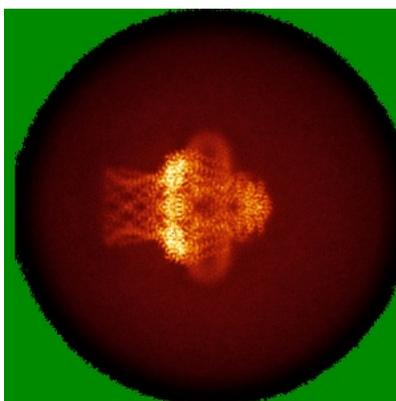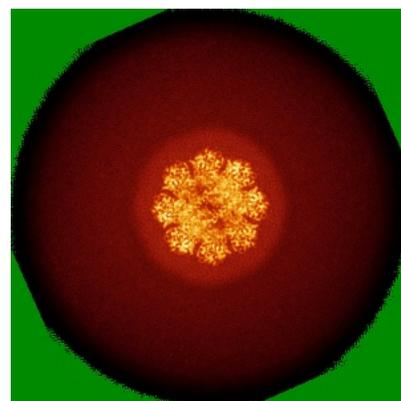
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X   Y   Z
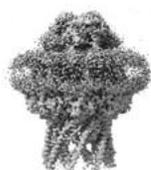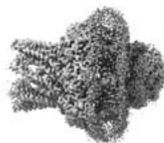
The images above show the 3D surface view of the map at the recommended contour level 4.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ

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

7.2   Volume estimate ⓘ
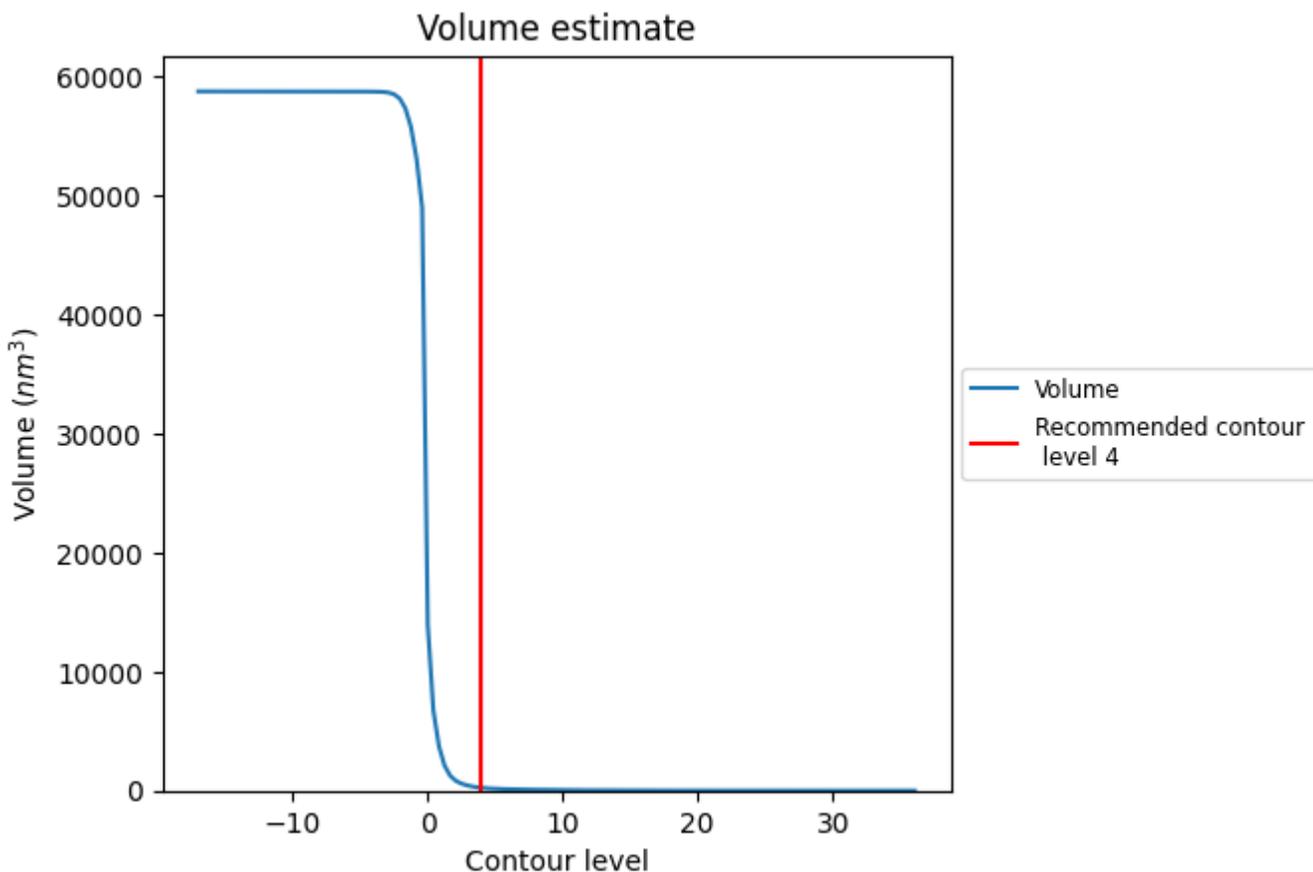
The volume at the recommended contour level is 241 nm^3; this corresponds to an approximate mass of 218 kDa.

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 ⓘ
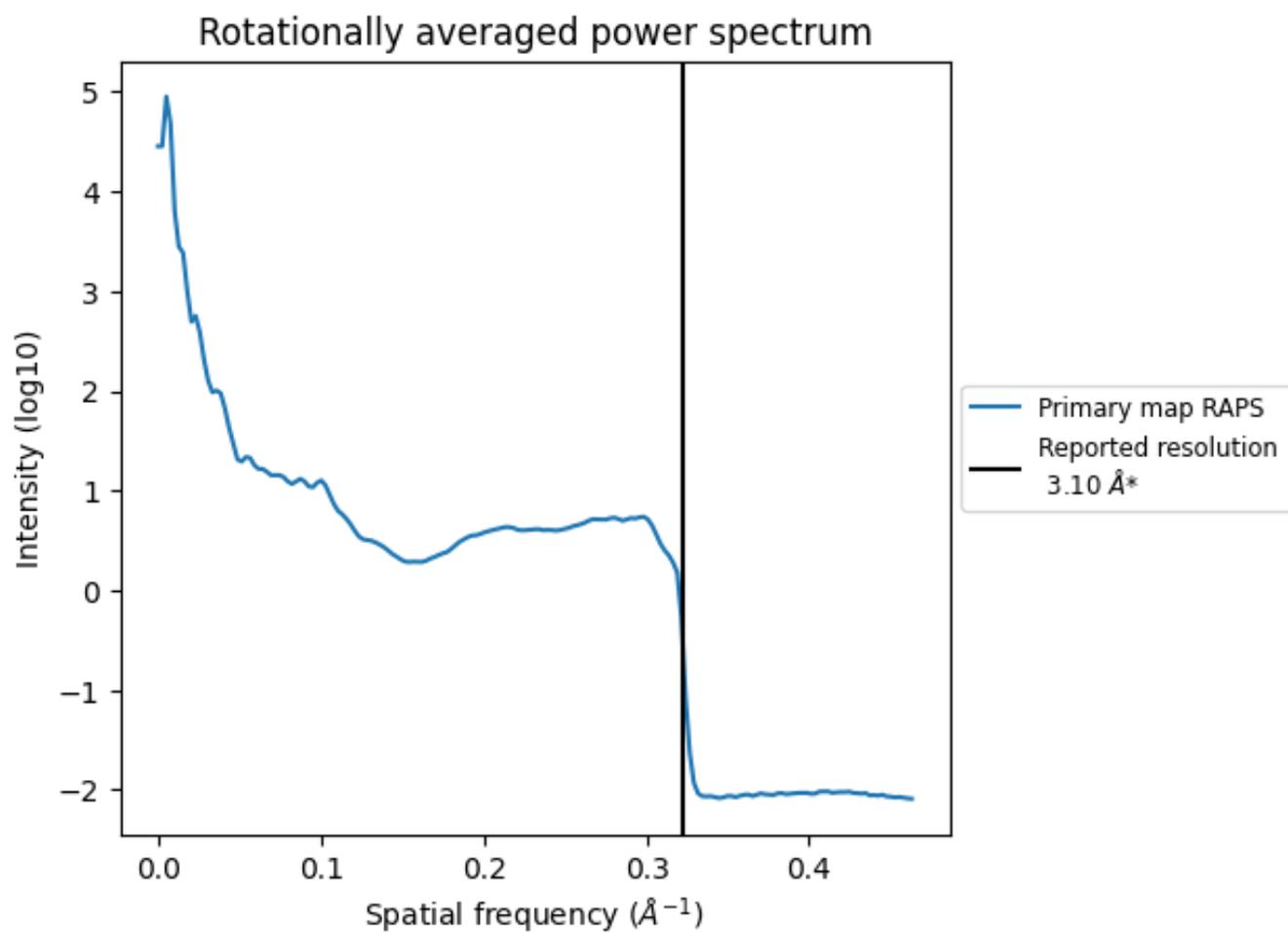
*Reported resolution corresponds to spatial frequency of 0.323 Å^{-1}

8 Fourier-Shell correlation ⓘ

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

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-41592 and PDB model 8TSH. Per-residue inclusion information can be found in section 3 on page 12.

9.1 Map-model overlay ⓘ

| X | Y | Z |
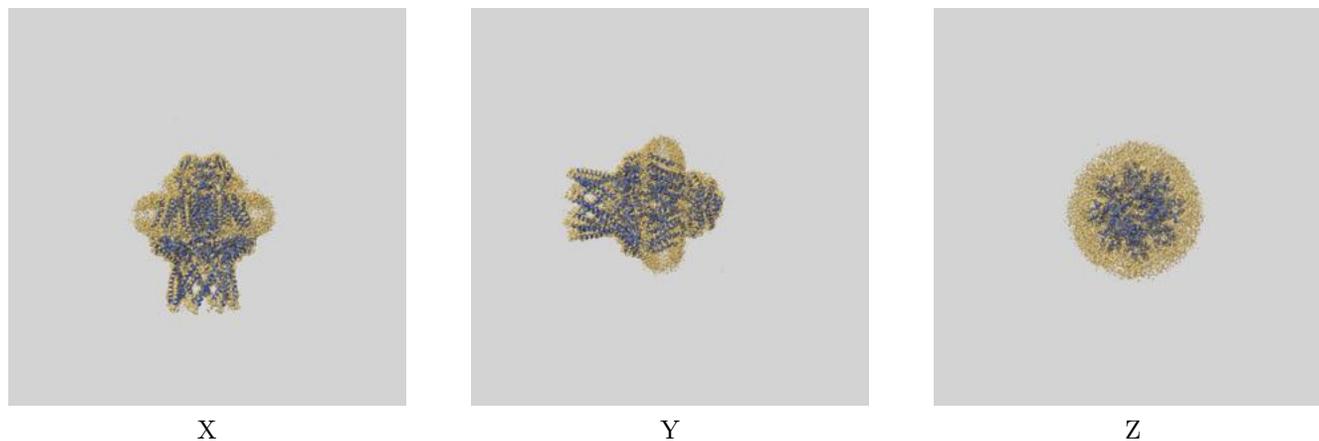
The images above show the 3D surface view of the map at the recommended contour level 4.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2　Q-score mapped to coordinate model ⓘ

X　　　　　　　　　　Y　　　　　　　　　　Z
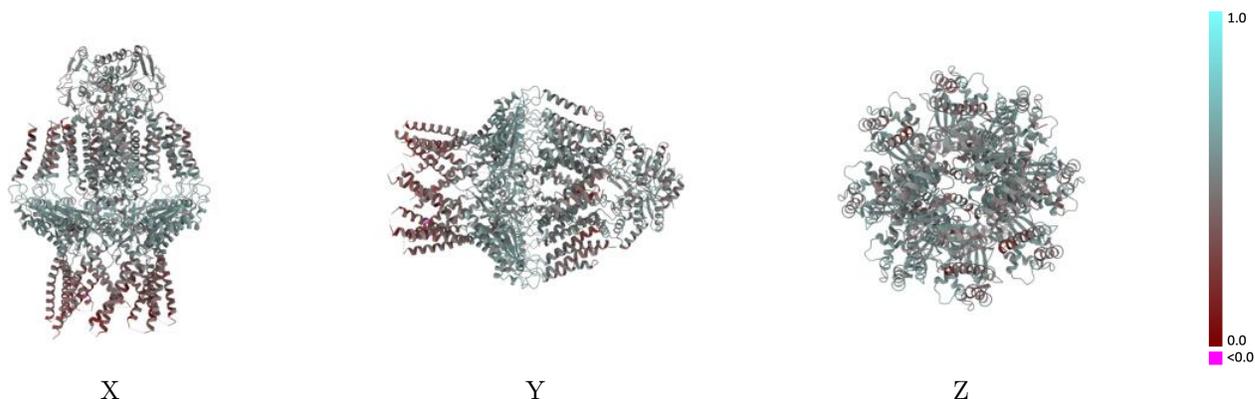
The images above show the model with each residue coloured according its Q-score. This shows
their resolvability in the map with higher Q-score values reflecting better resolvability. Please
note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at
resolutions 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
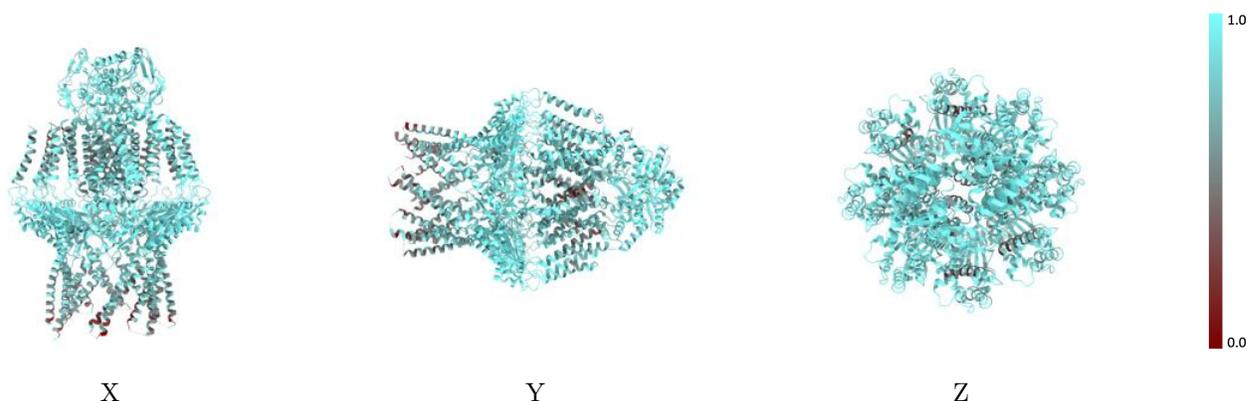
The images above show the model with each residue coloured according to its atom inclusion. This
shows to what extent they are inside the map at the recommended contour level (4).

9.4   Atom inclusion ⓘ
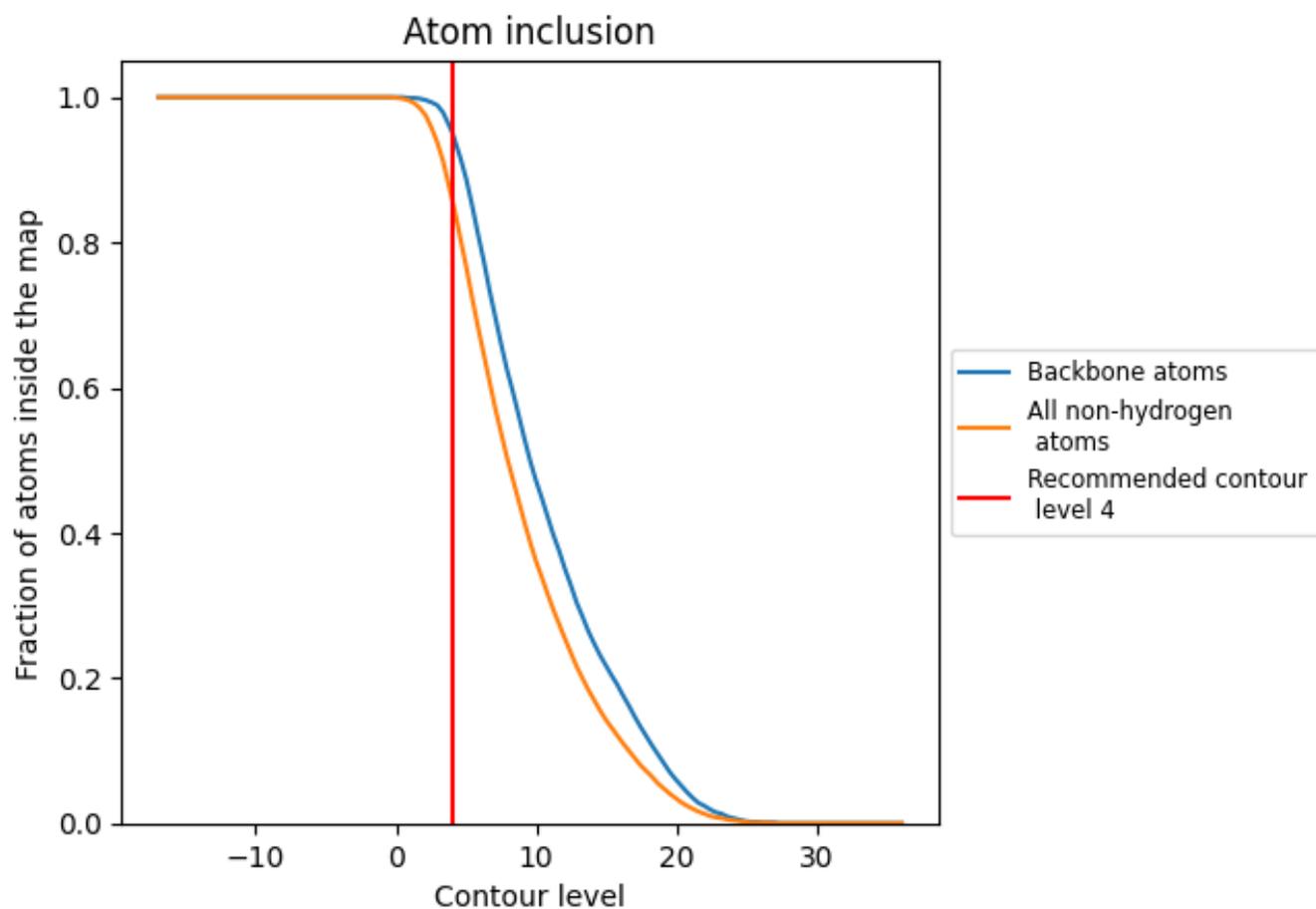
At the recommended contour level, 95% of all backbone atoms, 86% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8600	0.4990
A	0.9300	0.5020
B	0.9250	0.5090
C	0.8420	0.5120
D	0.8500	0.5190
E	0.8360	0.4830
F	0.8560	0.4960
G	0.8680	0.5060
H	0.8200	0.4840
I	0.8470	0.4920
J	0.8640	0.4970
K	0.8790	0.5140
L	0.8310	0.4800

1.0

0.0
<0.0