W O R L D W I D E

wwPDB

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

Full wwPDB EM Validation Report ⓘ

Jun 20, 2024 – 12:23 AM JST

PDB ID	:	7WM2
EMDB ID	:	EMD-32598
Title	:	Cryo-EM structure of AKT1
Authors	:	Dongliang, L.; Zijie, Z.; Yannan, Q.; Yuyue, T.; Huaizong, S.
Deposited on	:	2022-01-14
Resolution	:	2.69 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.69 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		17
Ramachandran outliers		0.2%
Sidechain outliers		11.2%

Worse — *Better*

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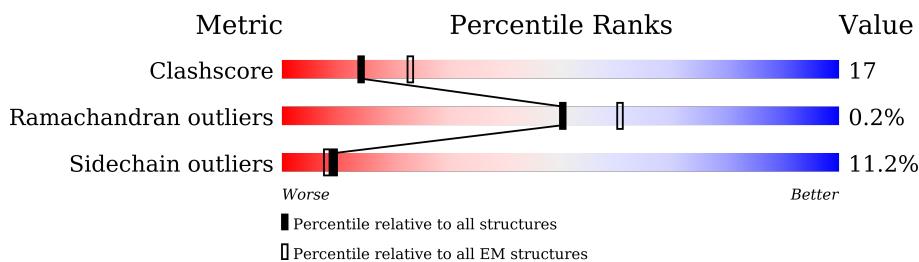
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	895	5% / 33% 16% • 47%
1	B	895	7% / 34% 16% • 48%
1	C	895	6% / 33% 16% • 47%
1	D	895	7% / 35% 15% • 48%
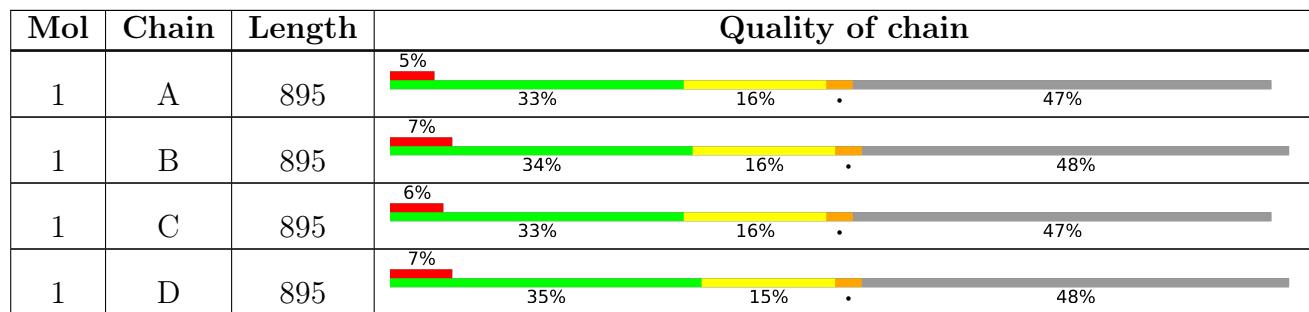
2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 15485 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 Potassium channel AKT1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	470	Total	C	N	O	S	0	0
			3837	2491	651	672	23		
1	B	469	Total	C	N	O	S	0	0
			3826	2485	647	671	23		
1	C	470	Total	C	N	O	S	0	0
			3837	2491	651	672	23		
1	D	469	Total	C	N	O	S	0	0
			3826	2485	647	671	23		

There are 152 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	858	LEU	-	expression tag	UNP Q38998
A	859	GLU	-	expression tag	UNP Q38998
A	860	GLY	-	expression tag	UNP Q38998
A	861	SER	-	expression tag	UNP Q38998
A	862	ASP	-	expression tag	UNP Q38998
A	863	GLU	-	expression tag	UNP Q38998
A	864	VAL	-	expression tag	UNP Q38998
A	865	ASP	-	expression tag	UNP Q38998
A	866	ALA	-	expression tag	UNP Q38998
A	867	GLY	-	expression tag	UNP Q38998
A	868	SER	-	expression tag	UNP Q38998
A	869	ALA	-	expression tag	UNP Q38998
A	870	ALA	-	expression tag	UNP Q38998
A	871	ALA	-	expression tag	UNP Q38998
A	872	SER	-	expression tag	UNP Q38998
A	873	GLY	-	expression tag	UNP Q38998
A	874	GLY	-	expression tag	UNP Q38998
A	875	SER	-	expression tag	UNP Q38998
A	876	ASP	-	expression tag	UNP Q38998
A	877	TYR	-	expression tag	UNP Q38998
A	878	LYS	-	expression tag	UNP Q38998
A	879	ASP	-	expression tag	UNP Q38998

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Chain	Residue	Modelled	Actual	Comment	Reference
A	880	ASP	-	expression tag	UNP Q38998
A	881	ASP	-	expression tag	UNP Q38998
A	882	ASP	-	expression tag	UNP Q38998
A	883	LYS	-	expression tag	UNP Q38998
A	884	GLY	-	expression tag	UNP Q38998
A	885	SER	-	expression tag	UNP Q38998
A	886	HIS	-	expression tag	UNP Q38998
A	887	HIS	-	expression tag	UNP Q38998
A	888	HIS	-	expression tag	UNP Q38998
A	889	HIS	-	expression tag	UNP Q38998
A	890	HIS	-	expression tag	UNP Q38998
A	891	HIS	-	expression tag	UNP Q38998
A	892	HIS	-	expression tag	UNP Q38998
A	893	HIS	-	expression tag	UNP Q38998
A	894	HIS	-	expression tag	UNP Q38998
A	895	HIS	-	expression tag	UNP Q38998
B	858	LEU	-	expression tag	UNP Q38998
B	859	GLU	-	expression tag	UNP Q38998
B	860	GLY	-	expression tag	UNP Q38998
B	861	SER	-	expression tag	UNP Q38998
B	862	ASP	-	expression tag	UNP Q38998
B	863	GLU	-	expression tag	UNP Q38998
B	864	VAL	-	expression tag	UNP Q38998
B	865	ASP	-	expression tag	UNP Q38998
B	866	ALA	-	expression tag	UNP Q38998
B	867	GLY	-	expression tag	UNP Q38998
B	868	SER	-	expression tag	UNP Q38998
B	869	ALA	-	expression tag	UNP Q38998
B	870	ALA	-	expression tag	UNP Q38998
B	871	ALA	-	expression tag	UNP Q38998
B	872	SER	-	expression tag	UNP Q38998
B	873	GLY	-	expression tag	UNP Q38998
B	874	GLY	-	expression tag	UNP Q38998
B	875	SER	-	expression tag	UNP Q38998
B	876	ASP	-	expression tag	UNP Q38998
B	877	TYR	-	expression tag	UNP Q38998
B	878	LYS	-	expression tag	UNP Q38998
B	879	ASP	-	expression tag	UNP Q38998
B	880	ASP	-	expression tag	UNP Q38998
B	881	ASP	-	expression tag	UNP Q38998
B	882	ASP	-	expression tag	UNP Q38998
B	883	LYS	-	expression tag	UNP Q38998

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Chain	Residue	Modelled	Actual	Comment	Reference
B	884	GLY	-	expression tag	UNP Q38998
B	885	SER	-	expression tag	UNP Q38998
B	886	HIS	-	expression tag	UNP Q38998
B	887	HIS	-	expression tag	UNP Q38998
B	888	HIS	-	expression tag	UNP Q38998
B	889	HIS	-	expression tag	UNP Q38998
B	890	HIS	-	expression tag	UNP Q38998
B	891	HIS	-	expression tag	UNP Q38998
B	892	HIS	-	expression tag	UNP Q38998
B	893	HIS	-	expression tag	UNP Q38998
B	894	HIS	-	expression tag	UNP Q38998
B	895	HIS	-	expression tag	UNP Q38998
C	858	LEU	-	expression tag	UNP Q38998
C	859	GLU	-	expression tag	UNP Q38998
C	860	GLY	-	expression tag	UNP Q38998
C	861	SER	-	expression tag	UNP Q38998
C	862	ASP	-	expression tag	UNP Q38998
C	863	GLU	-	expression tag	UNP Q38998
C	864	VAL	-	expression tag	UNP Q38998
C	865	ASP	-	expression tag	UNP Q38998
C	866	ALA	-	expression tag	UNP Q38998
C	867	GLY	-	expression tag	UNP Q38998
C	868	SER	-	expression tag	UNP Q38998
C	869	ALA	-	expression tag	UNP Q38998
C	870	ALA	-	expression tag	UNP Q38998
C	871	ALA	-	expression tag	UNP Q38998
C	872	SER	-	expression tag	UNP Q38998
C	873	GLY	-	expression tag	UNP Q38998
C	874	GLY	-	expression tag	UNP Q38998
C	875	SER	-	expression tag	UNP Q38998
C	876	ASP	-	expression tag	UNP Q38998
C	877	TYR	-	expression tag	UNP Q38998
C	878	LYS	-	expression tag	UNP Q38998
C	879	ASP	-	expression tag	UNP Q38998
C	880	ASP	-	expression tag	UNP Q38998
C	881	ASP	-	expression tag	UNP Q38998
C	882	ASP	-	expression tag	UNP Q38998
C	883	LYS	-	expression tag	UNP Q38998
C	884	GLY	-	expression tag	UNP Q38998
C	885	SER	-	expression tag	UNP Q38998
C	886	HIS	-	expression tag	UNP Q38998
C	887	HIS	-	expression tag	UNP Q38998

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Chain	Residue	Modelled	Actual	Comment	Reference
C	888	HIS	-	expression tag	UNP Q38998
C	889	HIS	-	expression tag	UNP Q38998
C	890	HIS	-	expression tag	UNP Q38998
C	891	HIS	-	expression tag	UNP Q38998
C	892	HIS	-	expression tag	UNP Q38998
C	893	HIS	-	expression tag	UNP Q38998
C	894	HIS	-	expression tag	UNP Q38998
C	895	HIS	-	expression tag	UNP Q38998
D	858	LEU	-	expression tag	UNP Q38998
D	859	GLU	-	expression tag	UNP Q38998
D	860	GLY	-	expression tag	UNP Q38998
D	861	SER	-	expression tag	UNP Q38998
D	862	ASP	-	expression tag	UNP Q38998
D	863	GLU	-	expression tag	UNP Q38998
D	864	VAL	-	expression tag	UNP Q38998
D	865	ASP	-	expression tag	UNP Q38998
D	866	ALA	-	expression tag	UNP Q38998
D	867	GLY	-	expression tag	UNP Q38998
D	868	SER	-	expression tag	UNP Q38998
D	869	ALA	-	expression tag	UNP Q38998
D	870	ALA	-	expression tag	UNP Q38998
D	871	ALA	-	expression tag	UNP Q38998
D	872	SER	-	expression tag	UNP Q38998
D	873	GLY	-	expression tag	UNP Q38998
D	874	GLY	-	expression tag	UNP Q38998
D	875	SER	-	expression tag	UNP Q38998
D	876	ASP	-	expression tag	UNP Q38998
D	877	TYR	-	expression tag	UNP Q38998
D	878	LYS	-	expression tag	UNP Q38998
D	879	ASP	-	expression tag	UNP Q38998
D	880	ASP	-	expression tag	UNP Q38998
D	881	ASP	-	expression tag	UNP Q38998
D	882	ASP	-	expression tag	UNP Q38998
D	883	LYS	-	expression tag	UNP Q38998
D	884	GLY	-	expression tag	UNP Q38998
D	885	SER	-	expression tag	UNP Q38998
D	886	HIS	-	expression tag	UNP Q38998
D	887	HIS	-	expression tag	UNP Q38998
D	888	HIS	-	expression tag	UNP Q38998
D	889	HIS	-	expression tag	UNP Q38998
D	890	HIS	-	expression tag	UNP Q38998
D	891	HIS	-	expression tag	UNP Q38998

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Chain	Residue	Modelled	Actual	Comment	Reference
D	892	HIS	-	expression tag	UNP Q38998
D	893	HIS	-	expression tag	UNP Q38998
D	894	HIS	-	expression tag	UNP Q38998
D	895	HIS	-	expression tag	UNP Q38998

- Molecule 2 is (2S)-3-(hexadecanoyloxy)-2-[(9Z)-octadec-9-enoyloxy]propyl 2-(trimethylammonio)ethyl phosphate (three-letter code: POV) (formula: $C_{42}H_{82}NO_8P$) (labeled as "Ligand of Interest" by depositor).
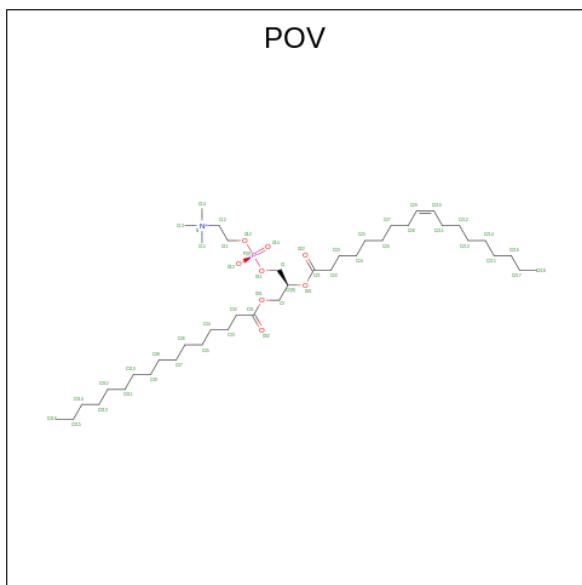
Mol	Chain	Residues	Atoms				AltConf
2	A	1	Total	C	O	P	0
			39	30	8	1	
2	B	1	Total	C	O	P	0
			39	30	8	1	
2	C	1	Total	C	O	P	0
			39	30	8	1	
2	D	1	Total	C	O	P	0
			39	30	8	1	

- Molecule 3 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
3	A	3	Total	K	0
			3	3	

3　Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Potassium channel AKT1

HIS LEU ILE PHE ALA THR ASP SER LEU GLU GLY GLY SER ASP GLU VAL ASP ALA GLY SER ALA ALA ALA SER GLY GLY SER ASP TYR LYS ASP ASP ASP LYS GLY SER HIS HIS HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 1: Potassium channel AKT1

Chain B:

MET ARG GLY GLY ALA LEU LEU LEU CYS GLY GLN VAL GLN ASP GLU ILE GLU GLN LEU SER ARG GLU SER HIS PHE SER LEU SER THR GLY ILE LEU PRO SER LEU GLY ALA ARG SER ASN ARG ARG VAL K44 D54 H55 I59 W60 F63 V66 L67 T71 A72 W73 V74

S75 P76 R83 T92 D103 I104 T107 F108 D114 K115 S116 T117 Y118 D123 R124 Y131 L137 L138 D139 L140 V141 I144 P145 S146 E147 M150 Y157 R164 L165 W166 R167 L168 R169 D181 R182 Y186 R190 K193 L194 T198 L199 V202

N216 S217 N218 K221 N227 N230 F231 L232 E233 E234 S235 L236 S243 M244 S247 I248 T249 T250 L251 D258 L275 M288 T289 N290 L291 V292 V293 H294 G295 T296 S297 R298 T299 R300 F302 R303 D304 A308 N311 F312 A313 H314 H317 L318 P319 P320 R321

L322 Q323 D324 Q325 A328 D337 S338 G340 L341 Q342 Q343 Q344 E345 T346 L347 D348 K352 S356 H360 D368 K369 V370 R374 G375 V376 S377 N378 D379 L380 L381 F382 V385 S386 E387 M388 K389 P395 K396 E397 D398 V399 I400 L401 Q402 N403 E404 A405 Y410 I411

L412 G415 T416 A417 D418 L419 V420 D421 V422 D423 T424 G425 T426 E427 S428 I429 V430 R431 E432 V433 K434 T439 G440 E441 C446 Y447 Q450 L451 F452 T456 K457 R458 L462 L463 N466 R467 L471 N472 I473 N477 V478 G479 D480 G481 T482 L483 I484 N487 L488 L489

Q490 H491 L492 K493 E494 M495 N496 D497 P498 V499 M500 T501 N502 V503 L504 L505 E506 I507 E508 N509 M510 L511 A512 ARG GLY LYS MET ASP LEU PRO LEU ASN LEU CYS PHE ALA ALA ILE ARG GLU ASP ASP LEU LEU LEU HIS GLN LEU LEU LEU LYS ARG LEU ASP ASN GLU SER ASP ASN

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

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

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

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

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

HIS LEU ILE PHE ALA THR ASP SER LEU GLU GLY SER ASP GLU VAL ALA ASP SER ALA ALA SER GLY GLY SER ASP TYR LYS ASP ASP ASP LYS GLY SER HIS HIS HIS HIS HIS HIS HIS HIS HIS HIS

• Molecule 1: Potassium channel AKT1

Chain C:

MET ARG GLY GLY ALA LEU LEU LEU CYS GLY GLN VAL GLN ASP GLU ILE GLU GLN LEU GLN GLN LEU SER ARG GLU SER HIS PHE SER LEU SER THR GLY ILE LEU PRO SER LEU GLY ALA ARG SER ASN ARG ARG VAL K44 L45 R46 R47 F48 Y53 D54 H55 K56 L64 T71 S75 P76

• Molecule 1: Potassium channel AKT1

Chain D:

G425 T426 E427 S428 I429 V430 R431 E432 V433 K434 I438 I439 G440 E441 C446 Y447 R448 P449 Q450 L451 R458 M465 N466 R467 T468 T469 F470 I473 N477 V478 G479 D480 G481 T482 I483 I484 M485 N486 N487 L488 L489 Q490 H491 L492 K493 E494 M495 N496 D497 P498 V499 M500 T501 N502

V503 L504 L505 E506 I507 E508 N509 M510 L511 A512 ARG GLY LYS MET ASP LEU PRO LEU ASN LEU CYS PHE ALA ALA ILE ARG GLU ASP ASP ALA GLU GLY SER VAL PRO LEU TRP GLU ALA MET VAL GLU GLY HIS GLU LYS VAL LEU LYS VAL LYS ARG GLY LEU ASP LEU ASP PRO ASN GLU SER THR ILE ASP ALA GLY ASP VAL GLY ARG THR PRO LEU HIS ILE ALA CYS THR ALA

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

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

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

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

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

GLU VAL ASP ALA GLY SER ALA ALA ALA SER GLY GLY SER ASP TYR LYS ASP ASP ASP ASP LYS GLY SER HIS 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	399278	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 $(e^-/Å^2)$	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	9.181	Depositor
Minimum map value	-4.910	Depositor
Average map value	0.011	Depositor
Map value standard deviation	0.159	Depositor
Recommended contour level	0.436	Depositor
Map size (Å)	258.552, 258.552, 258.552	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0773, 1.0773, 1.0773	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: K, POV

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	0.59	2/3929 (0.1%)	0.55	0/5333
1	B	0.60	2/3918 (0.1%)	0.62	4/5319 (0.1%)
1	C	0.56	1/3929 (0.0%)	0.57	1/5333 (0.0%)
1	D	0.59	2/3918 (0.1%)	0.56	0/5319
All	All	0.58	7/15694 (0.0%)	0.57	5/21304 (0.0%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	247	SER	CA-CB	-5.94	1.44	1.52
1	D	247	SER	CA-CB	-5.78	1.44	1.52
1	A	247	SER	CA-CB	-5.72	1.44	1.52
1	A	75	SER	CA-CB	-5.09	1.45	1.52
1	C	75	SER	CA-CB	-5.03	1.45	1.52
1	B	75	SER	CA-CB	-5.01	1.45	1.52
1	D	75	SER	CA-CB	-5.00	1.45	1.52

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	303	ARG	NE-CZ-NH1	-7.71	116.45	120.30
1	B	303	ARG	CG-CD-NE	5.55	123.45	111.80
1	B	303	ARG	CB-CG-CD	-5.52	97.24	111.60
1	B	303	ARG	NE-CZ-NH2	5.42	123.01	120.30
1	C	190	ARG	CG-CD-NE	-5.29	100.69	111.80

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	3837	0	3869	140	0
1	B	3826	0	3855	130	0
1	C	3837	0	3869	183	0
1	D	3826	0	3856	129	0
2	A	39	0	52	0	0
2	B	39	0	52	1	0
2	C	39	0	52	5	0
2	D	39	0	52	2	0
3	A	3	0	0	0	0
All	All	15485	0	15657	541	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 17.

All (541) 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:D:202:VAL:CG2	1:D:251:LEU:HD12	1.76	1.15
1:B:202:VAL:CG2	1:B:251:LEU:HD12	1.78	1.14
1:B:202:VAL:HG23	1:B:251:LEU:HD12	1.30	1.14
1:B:312:PHE:HB2	1:C:343:GLN:CG	1.82	1.09
1:D:202:VAL:HG23	1:D:251:LEU:HD12	1.31	1.08
1:B:312:PHE:HB2	1:C:343:GLN:HG3	1.32	1.06
1:C:315:ARG:HD3	1:D:339:GLU:OE2	1.59	1.03
1:D:297:SER:O	1:D:300:ARG:HD2	1.62	0.98
1:B:312:PHE:CB	1:C:343:GLN:HG3	1.93	0.98
1:C:75:SER:OG	1:C:76:PRO:HD3	1.67	0.93
1:B:202:VAL:HG23	1:B:251:LEU:CD1	2.01	0.89
1:A:402:GLN:H	1:A:453:THR:HG22	1.38	0.88
1:C:335:ARG:HB2	1:C:335:ARG:NH1	1.90	0.87
1:D:75:SER:OG	1:D:76:PRO:HD3	1.76	0.86
1:B:341:LEU:O	1:B:341:LEU:HD12	1.76	0.85
1:B:75:SER:OG	1:B:76:PRO:HD3	1.77	0.84
1:B:202:VAL:CG2	1:B:251:LEU:CD1	2.55	0.84
1:A:341:LEU:CD1	1:A:392:TYR:OH	2.26	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:202:VAL:HG23	1:D:251:LEU:CD1	2.06	0.84
1:B:304:ASP:OD1	1:B:304:ASP:N	2.11	0.81
1:C:347:LEU:HD11	1:C:358:ILE:HD11	1.61	0.81
1:C:335:ARG:HD2	1:D:115:LYS:NZ	1.96	0.80
1:C:352:LYS:HD3	1:C:355:ARG:HE	1.44	0.80
1:C:185:ASN:HB2	1:C:188:TRP:HB2	1.60	0.80
1:D:202:VAL:CG2	1:D:251:LEU:CD1	2.58	0.80
1:A:75:SER:OG	1:A:76:PRO:HD3	1.82	0.79
1:C:497:ASP:HB2	1:C:500:MET:HB2	1.65	0.79
1:D:297:SER:HA	1:D:300:ARG:NE	1.97	0.79
1:A:343:GLN:CG	1:D:312:PHE:HB2	2.11	0.79
1:B:312:PHE:CG	1:C:343:GLN:HG3	2.18	0.79
1:C:185:ASN:HD22	1:C:185:ASN:H	1.30	0.79
1:D:400:ILE:HD11	1:D:450:GLN:HG3	1.64	0.79
1:B:301:ASN:O	1:B:301:ASN:ND2	2.17	0.78
1:B:312:PHE:HB2	1:C:343:GLN:HG2	1.65	0.77
1:A:402:GLN:HE21	1:A:452:PHE:HA	1.49	0.77
1:A:343:GLN:HG3	1:D:312:PHE:HB2	1.65	0.77
1:C:190:ARG:CB	1:C:190:ARG:HH11	1.99	0.76
1:C:337:ASP:HA	1:C:342:GLN:HB3	1.68	0.75
1:C:492:LEU:HD21	1:C:503:VAL:HB	1.69	0.75
1:C:315:ARG:CD	1:D:339:GLU:OE2	2.34	0.73
1:B:388:MET:HB3	1:B:463:LEU:HD22	1.70	0.72
1:C:351:PRO:HD2	1:C:354:ILE:CG2	2.18	0.72
1:A:419:LEU:HD12	1:A:452:PHE:HB2	1.71	0.72
1:C:303:ARG:NH1	1:D:181:ASP:O	2.22	0.72
1:A:54:ASP:OD1	1:A:55:HIS:N	2.23	0.72
1:A:332:LEU:O	1:A:336:THR:HG23	1.90	0.72
1:C:480:ASP:HA	1:C:483:ILE:HD13	1.72	0.71
1:A:139:ASP:OD1	1:A:166:TRP:NE1	2.21	0.71
1:A:190:ARG:CZ	1:A:190:ARG:HB3	2.19	0.71
1:B:312:PHE:CD1	1:C:343:GLN:CB	2.74	0.71
1:A:202:VAL:CG2	1:A:251:LEU:HD22	2.21	0.71
1:B:218:ASN:HD21	1:B:221:LYS:HG3	1.55	0.70
1:A:46:ARG:NH1	1:A:122:ASP:O	2.24	0.70
1:A:477:ASN:HB3	1:D:424:THR:HB	1.74	0.70
1:B:251:LEU:HD23	1:B:251:LEU:O	1.91	0.69
1:B:489:LEU:HA	1:B:492:LEU:HD12	1.73	0.69
1:A:185:ASN:HB3	1:A:188:TRP:HB2	1.75	0.69
1:A:181:ASP:OD1	1:A:182:ARG:N	2.24	0.69
1:B:202:VAL:HG22	1:B:251:LEU:HD12	1.73	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:901:POV:H3	2:C:901:POV:O13	1.92	0.69
1:B:312:PHE:CD1	1:C:343:GLN:HB3	2.27	0.68
1:A:341:LEU:O	1:A:341:LEU:HD13	1.92	0.68
1:A:186:TYR:CZ	1:A:190:ARG:HD2	2.29	0.68
1:C:46:ARG:HH22	1:C:124:ARG:H	1.41	0.68
1:C:332:LEU:O	1:C:336:THR:HG23	1.92	0.68
1:B:300:ARG:HB2	1:C:294:HIS:HE1	1.59	0.68
1:B:402:GLN:NE2	1:B:451:LEU:O	2.27	0.68
1:B:399:VAL:HG23	1:B:400:ILE:HG22	1.76	0.67
1:C:351:PRO:HD2	1:C:354:ILE:HG22	1.77	0.67
1:D:139:ASP:OD2	1:D:169:ARG:NH2	2.28	0.67
1:D:202:VAL:HG22	1:D:251:LEU:HD12	1.74	0.67
1:A:434:LYS:NZ	1:A:435:ALA:O	2.27	0.67
1:C:139:ASP:OD1	1:C:166:TRP:NE1	2.23	0.66
1:C:501:THR:O	1:C:504:LEU:HB2	1.96	0.66
1:A:400:ILE:HD11	1:A:450:GLN:HG3	1.78	0.65
1:B:318:LEU:HD12	1:B:322:LEU:HD21	1.78	0.65
1:A:402:GLN:NE2	1:A:451:LEU:O	2.30	0.65
1:A:501:THR:HA	1:A:504:LEU:HD13	1.78	0.65
1:A:341:LEU:HD11	1:A:392:TYR:OH	1.97	0.65
1:A:510:MET:HA	1:A:513:ARG:HB3	1.77	0.65
1:B:248:ILE:HD13	1:B:248:ILE:O	1.97	0.64
1:C:505:LEU:HA	1:C:508:GLU:HG2	1.79	0.64
1:D:71:THR:HG21	1:D:167:ARG:HH11	1.62	0.64
1:B:341:LEU:HD12	1:B:341:LEU:C	2.14	0.64
1:A:315:ARG:NE	1:B:339:GLU:OE2	2.29	0.64
1:B:71:THR:HG21	1:B:167:ARG:HH11	1.63	0.64
1:B:376:VAL:HA	1:B:483:ILE:HD11	1.79	0.64
1:D:248:ILE:HD13	1:D:248:ILE:O	1.98	0.63
1:A:190:ARG:NH1	1:A:190:ARG:HA	2.13	0.63
1:C:258:ASP:N	1:C:258:ASP:OD1	2.31	0.63
1:D:482:THR:HG23	1:D:483:ILE:HD12	1.81	0.62
1:C:352:LYS:N	1:C:352:LYS:HE2	2.14	0.62
1:C:190:ARG:HH11	1:C:190:ARG:CA	2.12	0.62
1:B:139:ASP:OD2	1:B:169:ARG:NH2	2.32	0.62
1:D:505:LEU:HA	1:D:508:GLU:OE1	2.00	0.62
1:C:185:ASN:HD22	1:C:185:ASN:N	1.98	0.62
1:D:506:GLU:O	1:D:509:ASN:ND2	2.32	0.62
1:C:419:LEU:HD22	1:C:452:PHE:HD2	1.65	0.62
1:C:71:THR:HG21	1:C:167:ARG:HH11	1.63	0.61
1:B:318:LEU:HD23	1:B:318:LEU:H	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:144:ILE:O	1:C:164:ARG:NH2	2.32	0.61
1:A:71:THR:HG21	1:A:167:ARG:HH11	1.64	0.61
1:A:144:ILE:O	1:A:164:ARG:NH2	2.31	0.61
1:C:376:VAL:HB	1:C:381:LEU:HD11	1.81	0.61
1:C:371:TYR:HA	1:C:374:ARG:HH21	1.66	0.61
1:B:501:THR:O	1:B:505:LEU:N	2.34	0.60
1:C:180:LYS:HB3	1:C:180:LYS:HZ2	1.66	0.60
1:A:190:ARG:HH11	1:A:190:ARG:CG	2.14	0.60
1:A:420:VAL:HG21	1:A:427:GLU:HG2	1.81	0.60
1:A:248:ILE:HD13	1:A:248:ILE:O	2.01	0.60
1:C:400:ILE:HD11	1:C:450:GLN:HG3	1.82	0.60
1:A:190:ARG:HH12	1:A:193:LYS:HE2	1.66	0.60
1:D:251:LEU:HD23	1:D:251:LEU:O	2.01	0.60
1:C:509:ASN:O	1:C:513:ARG:N	2.34	0.60
1:B:258:ASP:OD1	1:B:258:ASP:N	2.33	0.60
1:B:312:PHE:CD1	1:C:343:GLN:CG	2.85	0.60
1:A:193:LYS:HB2	1:A:193:LYS:HZ3	1.67	0.59
1:D:298:ARG:NH2	1:D:298:ARG:HG3	2.17	0.59
1:B:441:GLU:OE2	1:B:441:GLU:N	2.34	0.59
1:D:258:ASP:OD1	1:D:258:ASP:N	2.32	0.59
1:C:434:LYS:NZ	1:C:435:ALA:O	2.36	0.59
1:B:477:ASN:OD1	1:B:477:ASN:N	2.34	0.59
1:C:180:LYS:HB3	1:C:180:LYS:NZ	2.17	0.59
1:C:345:GLU:CD	1:C:345:GLU:H	2.05	0.59
1:C:376:VAL:HG12	1:C:380:LEU:HD21	1.83	0.59
1:C:410:TYR:HD1	1:C:439:ILE:HD11	1.66	0.59
1:B:398:ASP:OD1	1:B:398:ASP:N	2.36	0.59
1:C:335:ARG:HD2	1:D:115:LYS:HZ1	1.66	0.59
1:B:466:ASN:OD1	1:B:467:ARG:N	2.36	0.58
1:A:448:ARG:HH22	1:A:503:VAL:HA	1.67	0.58
1:B:181:ASP:OD1	1:B:182:ARG:N	2.34	0.58
1:C:352:LYS:HE2	1:C:352:LYS:HA	1.84	0.58
1:B:321:ARG:O	1:B:321:ARG:NH1	2.33	0.58
1:C:352:LYS:HE2	1:C:352:LYS:CA	2.33	0.58
1:A:489:LEU:HD21	1:A:507:ILE:HG12	1.85	0.58
1:B:396:LYS:N	1:B:456:THR:O	2.26	0.58
1:D:190:ARG:NH1	1:D:193:LYS:HD2	2.19	0.58
1:C:339:GLU:HB3	1:C:341:LEU:HD22	1.84	0.58
1:B:356:SER:O	1:B:356:SER:OG	2.21	0.57
1:A:190:ARG:HH11	1:A:190:ARG:HG2	1.69	0.57
1:A:324:ASP:OD1	1:A:325:GLN:N	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:399:VAL:HG23	1:A:400:ILE:HG22	1.85	0.57
1:C:415:GLY:HA2	1:C:458:ARG:HD2	1.87	0.57
1:A:194:LEU:HA	1:A:197:VAL:HG12	1.87	0.57
1:C:380:LEU:O	1:C:384:LEU:N	2.30	0.57
1:D:500:MET:HA	1:D:503:VAL:HG23	1.87	0.57
1:A:308:ALA:HB1	1:B:342:GLN:HB2	1.87	0.57
1:C:315:ARG:NE	1:D:339:GLU:CD	2.58	0.57
1:B:312:PHE:CG	1:C:343:GLN:CG	2.87	0.57
1:A:190:ARG:CZ	1:A:190:ARG:CB	2.83	0.56
1:B:296:THR:HA	1:B:299:THR:CG2	2.34	0.56
2:B:901:POV:H3A	2:B:901:POV:O22	2.04	0.56
1:C:256:TYR:HH	1:D:250:THR:HG1	1.53	0.56
1:C:316:ASN:OD1	1:C:316:ASN:N	2.38	0.56
1:C:352:LYS:NZ	1:C:355:ARG:HD3	2.20	0.56
1:D:181:ASP:OD1	1:D:182:ARG:N	2.37	0.56
1:B:381:LEU:O	1:B:385:VAL:HG23	2.06	0.56
1:C:331:CYS:SG	1:C:332:LEU:N	2.78	0.56
1:C:366:LEU:HD11	1:C:413:VAL:HA	1.87	0.56
1:C:489:LEU:HD21	1:C:507:ILE:HG21	1.86	0.56
1:A:442:ILE:HD12	1:A:503:VAL:HG11	1.88	0.56
1:B:419:LEU:HD11	1:B:452:PHE:HB2	1.88	0.56
1:C:315:ARG:CZ	1:D:339:GLU:OE1	2.53	0.56
1:A:383:GLN:HE22	1:A:473:ILE:HG21	1.71	0.56
1:A:477:ASN:OD1	1:A:477:ASN:N	2.39	0.56
1:C:216:ASN:ND2	1:C:218:ASN:O	2.39	0.56
1:A:311:ASN:O	1:A:315:ARG:HD3	2.06	0.55
1:B:360:HIS:O	1:B:360:HIS:ND1	2.35	0.55
1:C:54:ASP:OD1	1:C:55:HIS:N	2.38	0.55
1:A:44:LYS:HZ2	1:A:44:LYS:N	2.05	0.55
1:A:191:CYS:SG	1:A:192:ALA:N	2.79	0.55
1:A:216:ASN:ND2	1:A:218:ASN:O	2.39	0.55
1:C:335:ARG:HB2	1:C:335:ARG:HH11	1.68	0.55
1:C:75:SER:OG	1:C:76:PRO:CD	2.48	0.55
1:C:489:LEU:O	1:C:493:LYS:HE2	2.07	0.55
1:D:218:ASN:HD21	1:D:221:LYS:HG3	1.70	0.55
1:D:147:GLU:OE2	1:D:147:GLU:N	2.38	0.55
1:A:114:ASP:O	1:A:118:TYR:N	2.33	0.55
1:C:252:THR:O	1:C:253:THR:OG1	2.21	0.55
1:A:46:ARG:HH21	1:A:124:ARG:HG3	1.72	0.55
1:B:297:SER:CB	1:B:300:ARG:HH12	2.19	0.55
1:C:410:TYR:CD1	1:C:439:ILE:HD11	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:315:ARG:CZ	1:B:339:GLU:OE2	2.54	0.55
1:B:216:ASN:ND2	1:B:218:ASN:O	2.40	0.55
1:A:182:ARG:NH2	1:D:310:SER:HB3	2.22	0.54
1:D:54:ASP:OD1	1:D:56:LYS:N	2.39	0.54
1:D:114:ASP:OD1	1:D:115:LYS:N	2.40	0.54
1:A:341:LEU:HD12	1:A:392:TYR:OH	2.05	0.54
1:B:147:GLU:OE1	1:B:147:GLU:N	2.40	0.54
1:C:123:ASP:N	1:C:123:ASP:OD1	2.40	0.54
1:A:360:HIS:CD2	1:A:364:TYR:HB2	2.42	0.54
1:B:123:ASP:OD1	1:B:123:ASP:N	2.40	0.54
1:D:304:ASP:OD1	1:D:304:ASP:N	2.40	0.54
1:D:356:SER:O	1:D:356:SER:OG	2.24	0.54
1:D:298:ARG:HG3	1:D:298:ARG:HH21	1.72	0.54
1:C:108:PHE:HE1	1:C:131:TYR:HD2	1.55	0.54
1:D:190:ARG:HH12	1:D:193:LYS:HD2	1.73	0.54
1:D:216:ASN:ND2	1:D:218:ASN:O	2.41	0.54
1:C:352:LYS:CA	1:C:352:LYS:CE	2.85	0.54
1:D:360:HIS:ND1	1:D:360:HIS:O	2.42	0.53
1:A:67:LEU:HD13	1:A:96:VAL:HG13	1.90	0.53
1:D:504:LEU:O	1:D:507:ILE:HG22	2.08	0.53
1:C:190:ARG:CB	1:C:190:ARG:NH1	2.71	0.53
1:C:190:ARG:HH11	1:C:190:ARG:HB3	1.73	0.53
1:C:448:ARG:NH1	1:C:506:GLU:OE2	2.42	0.53
1:D:480:ASP:HA	1:D:483:ILE:HD13	1.90	0.53
1:A:337:ASP:HA	1:A:342:GLN:HB3	1.91	0.53
1:C:191:CYS:SG	1:C:192:ALA:N	2.82	0.53
1:C:315:ARG:NE	1:D:339:GLU:OE1	2.41	0.53
1:D:298:ARG:HH21	1:D:298:ARG:CG	2.22	0.53
1:A:190:ARG:NH1	1:A:190:ARG:CB	2.72	0.52
1:B:144:ILE:O	1:B:164:ARG:NH2	2.43	0.52
1:C:333:LYS:O	1:C:337:ASP:HB2	2.09	0.52
1:D:381:LEU:O	1:D:385:VAL:HG23	2.10	0.52
1:A:56:LYS:O	1:A:59:ILE:HG13	2.08	0.52
1:D:486:ASN:HA	1:D:489:LEU:HD12	1.90	0.52
1:B:73:TRP:HD1	1:B:74:VAL:HG23	1.73	0.52
1:D:183:ASN:OD1	1:D:183:ASN:N	2.42	0.52
1:D:73:TRP:HD1	1:D:74:VAL:HG23	1.75	0.52
1:A:192:ALA:HA	1:A:195:VAL:HG12	1.91	0.52
1:A:256:TYR:HH	1:B:250:THR:HG1	1.57	0.52
1:C:316:ASN:HD22	1:D:362:LEU:CD1	2.23	0.52
1:B:312:PHE:CB	1:C:343:GLN:CG	2.64	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:377:SER:HB3	1:B:480:ASP:OD2	2.10	0.52
1:A:430:VAL:HG12	1:A:431:ARG:H	1.75	0.51
1:C:335:ARG:HB2	1:C:335:ARG:CZ	2.40	0.51
1:A:505:LEU:O	1:A:509:ASN:N	2.43	0.51
1:C:315:ARG:CD	1:D:339:GLU:CD	2.78	0.51
1:C:400:ILE:HG21	1:C:439:ILE:HD13	1.93	0.51
1:D:311:ASN:O	1:D:315:ARG:HG2	2.11	0.51
1:D:418:ASP:HA	1:D:432:GLU:HA	1.91	0.51
1:A:190:ARG:NH1	1:A:190:ARG:CG	2.72	0.51
1:C:342:GLN:O	1:C:342:GLN:HG2	2.09	0.51
1:A:492:LEU:O	1:A:495:MET:HG2	2.11	0.51
1:A:508:GLU:HA	1:A:511:LEU:HB2	1.92	0.51
1:B:380:LEU:HD12	1:B:477:ASN:ND2	2.25	0.51
1:C:316:ASN:HD22	1:D:362:LEU:HD13	1.75	0.51
2:C:901:POV:O22	2:C:901:POV:H24	2.11	0.51
1:B:297:SER:OG	1:B:300:ARG:NH1	2.44	0.51
1:D:139:ASP:OD1	1:D:166:TRP:NE1	2.26	0.51
1:D:194:LEU:O	1:D:198:THR:HG22	2.11	0.51
1:A:74:VAL:HG12	1:A:74:VAL:O	2.10	0.51
1:A:193:LYS:NZ	1:A:193:LYS:CB	2.73	0.50
1:A:347:LEU:HD13	1:A:347:LEU:N	2.25	0.50
1:C:187:PHE:CE2	1:C:294:HIS:ND1	2.79	0.50
1:A:193:LYS:HB2	1:A:193:LYS:NZ	2.26	0.50
1:A:415:GLY:HA2	1:A:458:ARG:HD2	1.91	0.50
1:C:369:LYS:O	1:C:374:ARG:NH2	2.42	0.50
1:A:108:PHE:HE1	1:A:131:TYR:HD2	1.58	0.50
1:B:387:GLU:OE2	1:B:473:ILE:HD11	2.11	0.50
1:C:53:TYR:HE1	1:C:113:LEU:HD11	1.77	0.50
1:B:400:ILE:HD11	1:B:450:GLN:HG3	1.93	0.50
1:C:147:GLU:OE2	1:C:147:GLU:N	2.41	0.50
1:A:258:ASP:OD1	1:A:258:ASP:N	2.34	0.50
1:B:103:ASP:O	1:B:107:THR:HG23	2.10	0.50
1:D:404:GLU:HB2	1:D:450:GLN:HB2	1.92	0.50
1:B:108:PHE:CE1	1:B:131:TYR:HD2	2.30	0.50
1:D:150:MET:HE1	1:D:157:TYR:HB2	1.94	0.50
1:B:290:ASN:O	1:B:294:HIS:HB2	2.11	0.50
1:B:482:THR:HG23	1:B:483:ILE:HG23	1.94	0.50
1:B:298:ARG:O	1:B:301:ASN:N	2.45	0.50
1:C:352:LYS:CD	1:C:355:ARG:HE	2.20	0.50
1:C:360:HIS:CD2	1:C:364:TYR:HB2	2.47	0.50
1:C:92:THR:O	1:C:92:THR:OG1	2.23	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:335:ARG:HD2	1:D:115:LYS:CE	2.41	0.50
1:C:342:GLN:O	1:C:344:GLN:N	2.45	0.50
1:C:347:LEU:CD1	1:C:358:ILE:HD11	2.36	0.50
1:A:213:ALA:HB2	1:A:223:TRP:NE1	2.27	0.49
1:B:194:LEU:O	1:B:198:THR:HG23	2.12	0.49
1:C:245:TYR:O	1:C:249:THR:HG23	2.12	0.49
1:C:337:ASP:OD1	1:C:342:GLN:NE2	2.44	0.49
1:D:54:ASP:OD1	1:D:55:HIS:N	2.45	0.49
1:A:183:ASN:OD1	1:A:183:ASN:N	2.46	0.49
1:D:92:THR:O	1:D:92:THR:OG1	2.28	0.49
1:D:377:SER:HB3	1:D:480:ASP:OD2	2.12	0.49
1:A:316:ASN:N	1:A:316:ASN:OD1	2.46	0.49
1:A:347:LEU:N	1:A:347:LEU:CD1	2.74	0.49
1:D:320:PRO:HA	1:D:323:GLN:HG3	1.93	0.49
1:A:67:LEU:O	1:A:71:THR:HG23	2.12	0.49
1:C:180:LYS:NZ	1:C:180:LYS:CB	2.72	0.49
1:D:108:PHE:CE1	1:D:131:TYR:HD2	2.29	0.49
1:B:150:MET:HE1	1:B:157:TYR:HB2	1.94	0.49
1:C:309:ALA:HA	1:D:346:THR:HG21	1.95	0.49
1:D:311:ASN:O	1:D:315:ARG:NH1	2.46	0.49
1:A:451:LEU:HD22	1:A:451:LEU:H	1.78	0.49
1:B:318:LEU:HB2	1:B:319:PRO:HD2	1.94	0.49
1:B:490:GLN:OE1	1:B:490:GLN:N	2.45	0.49
1:C:45:LEU:HD21	1:C:120:ILE:HB	1.94	0.49
1:D:400:ILE:HG13	1:D:404:GLU:HG3	1.94	0.49
1:C:497:ASP:O	1:C:501:THR:HG23	2.13	0.49
1:D:326:MET:HG3	1:D:327:LEU:HD12	1.94	0.49
1:A:202:VAL:HG23	1:A:251:LEU:HD22	1.93	0.49
1:A:367:MET:HE3	1:A:385:VAL:HG22	1.95	0.49
1:B:292:VAL:O	1:B:296:THR:HG23	2.13	0.49
1:C:352:LYS:HA	1:C:352:LYS:CE	2.39	0.49
1:A:352:LYS:HD3	1:A:355:ARG:HE	1.77	0.48
1:C:186:TYR:CD1	1:C:186:TYR:C	2.86	0.48
1:C:483:ILE:HD12	1:C:483:ILE:H	1.76	0.48
2:D:901:POV:H1	2:D:901:POV:O22	2.12	0.48
1:C:180:LYS:H	1:C:180:LYS:HZ3	1.59	0.48
1:D:123:ASP:OD2	1:D:126:GLN:HB2	2.14	0.48
1:B:337:ASP:OD1	1:B:337:ASP:N	2.41	0.48
1:C:115:LYS:H	1:C:115:LYS:HD3	1.79	0.48
1:C:350:LEU:H	1:C:350:LEU:HG	1.48	0.48
1:A:115:LYS:H	1:A:115:LYS:HD3	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:412:LEU:HD12	1:B:462:LEU:HG	1.95	0.48
1:A:497:ASP:O	1:A:501:THR:N	2.40	0.48
1:B:297:SER:CB	1:B:300:ARG:NH1	2.77	0.47
1:D:211:LEU:O	1:D:215:ARG:HG2	2.14	0.47
1:A:341:LEU:HD13	1:A:341:LEU:C	2.35	0.47
1:C:185:ASN:N	1:C:185:ASN:ND2	2.59	0.47
1:B:502:ASN:O	1:B:505:LEU:HB2	2.14	0.47
1:C:122:ASP:OD1	1:C:122:ASP:N	2.48	0.47
1:D:402:GLN:NE2	1:D:451:LEU:O	2.39	0.47
1:D:420:VAL:HA	1:D:430:VAL:HG23	1.96	0.47
1:A:448:ARG:HH21	1:A:506:GLU:HB2	1.80	0.47
1:A:93:ASP:OD1	1:A:94:ASN:N	2.47	0.47
1:A:147:GLU:OE2	1:A:147:GLU:N	2.43	0.47
1:A:215:ARG:HA	1:A:215:ARG:HD3	1.70	0.47
1:A:346:THR:O	1:A:350:LEU:HG	2.14	0.47
1:C:175:PHE:O	1:C:179:GLU:HG2	2.14	0.47
1:C:352:LYS:N	1:C:352:LYS:CE	2.78	0.47
2:C:901:POV:O22	2:C:901:POV:H1A	2.14	0.47
1:B:251:LEU:HD23	1:B:251:LEU:C	2.35	0.47
1:C:194:LEU:O	1:C:198:THR:HG22	2.15	0.47
1:C:215:ARG:HA	1:C:215:ARG:HD3	1.71	0.47
1:B:430:VAL:HG23	1:B:431:ARG:H	1.78	0.47
1:C:153:SER:HG	1:C:156:SER:HG	1.62	0.47
1:C:335:ARG:CZ	1:C:335:ARG:CB	2.92	0.47
1:B:484:ILE:HA	1:B:487:ASN:ND2	2.30	0.47
1:C:411:ILE:HD13	1:C:411:ILE:HA	1.71	0.47
1:D:505:LEU:HD23	1:D:505:LEU:H	1.80	0.47
1:A:190:ARG:NH1	1:A:190:ARG:CA	2.77	0.46
1:A:352:LYS:NZ	1:A:386:SER:O	2.43	0.46
1:A:491:HIS:HA	1:A:494:GLU:HG2	1.97	0.46
1:B:395:PRO:HB3	1:B:458:ARG:HA	1.96	0.46
1:B:114:ASP:O	1:B:118:TYR:N	2.49	0.46
1:C:399:VAL:HG13	1:C:400:ILE:HG22	1.97	0.46
1:B:415:GLY:HA2	1:B:458:ARG:HD2	1.97	0.46
1:A:343:GLN:CB	1:D:312:PHE:HB2	2.46	0.46
1:A:495:MET:HG3	1:A:500:MET:HB3	1.98	0.46
1:C:468:THR:OG1	1:C:469:THR:N	2.48	0.46
1:A:186:TYR:CZ	1:A:190:ARG:CD	2.97	0.46
1:D:409:PHE:CD2	1:D:438:ILE:HD11	2.50	0.46
1:A:361:PHE:HD2	1:A:362:LEU:HD12	1.80	0.46
1:B:63:PHE:O	1:B:66:VAL:HG22	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:421:ASP:OD1	1:B:421:ASP:N	2.49	0.46
1:C:75:SER:HG	1:C:76:PRO:HD3	1.74	0.46
1:C:431:ARG:HH12	1:C:433:VAL:HG12	1.80	0.46
1:D:63:PHE:O	1:D:66:VAL:HG22	2.16	0.46
1:C:139:ASP:OD2	1:C:169:ARG:NH2	2.41	0.46
1:C:315:ARG:CZ	1:D:339:GLU:CD	2.84	0.46
1:C:442:ILE:HD13	1:C:503:VAL:HG21	1.97	0.46
1:D:67:LEU:O	1:D:71:THR:HG23	2.16	0.46
1:D:251:LEU:C	1:D:251:LEU:CD2	2.85	0.46
1:A:108:PHE:CE1	1:A:131:TYR:HD2	2.34	0.45
1:B:495:MET:HE2	1:B:495:MET:HB2	1.84	0.45
1:B:230:ASN:OD1	1:B:230:ASN:N	2.47	0.45
1:B:67:LEU:O	1:B:71:THR:HG23	2.15	0.45
1:C:190:ARG:NH1	1:C:190:ARG:CG	2.73	0.45
1:D:366:LEU:HD11	1:D:413:VAL:HG12	1.98	0.45
1:D:380:LEU:HD12	1:D:477:ASN:HB3	1.98	0.45
1:A:381:LEU:HA	1:A:384:LEU:HB2	1.98	0.45
1:B:297:SER:HA	1:B:300:ARG:NH1	2.31	0.45
1:C:75:SER:HB2	1:C:161:ASN:O	2.17	0.45
1:B:324:ASP:O	1:B:328:ALA:N	2.45	0.45
1:C:360:HIS:HD2	1:C:364:TYR:HB2	1.82	0.45
1:A:182:ARG:NH1	1:D:306:ILE:HG22	2.32	0.45
1:A:411:ILE:HD13	1:A:411:ILE:HA	1.71	0.45
1:B:139:ASP:OD1	1:B:166:TRP:NE1	2.27	0.45
1:C:489:LEU:O	1:C:492:LEU:N	2.50	0.45
1:C:495:MET:SD	1:C:500:MET:HB3	2.56	0.45
1:D:326:MET:HG3	1:D:327:LEU:N	2.31	0.45
1:C:190:ARG:HB3	1:C:190:ARG:NH1	2.31	0.45
1:C:333:LYS:O	1:C:337:ASP:CB	2.65	0.45
1:C:409:PHE:CD2	1:C:438:ILE:HD11	2.52	0.45
1:B:251:LEU:C	1:B:251:LEU:CD2	2.85	0.45
1:C:422:VAL:O	1:C:422:VAL:HG23	2.16	0.45
1:C:423:ASP:O	1:C:426:THR:N	2.43	0.45
1:A:468:THR:OG1	1:A:469:THR:N	2.50	0.44
1:D:332:LEU:O	1:D:336:THR:HG22	2.17	0.44
1:D:441:GLU:OE2	1:D:441:GLU:N	2.49	0.44
1:A:186:TYR:CE2	1:A:190:ARG:HD3	2.52	0.44
1:A:341:LEU:CD1	1:A:341:LEU:C	2.85	0.44
1:B:313:ALA:HA	1:B:318:LEU:HD21	1.99	0.44
1:B:500:MET:O	1:B:503:VAL:HG12	2.17	0.44
1:D:493:LYS:HD2	1:D:504:LEU:HD21	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:87:PRO:O	1:A:89:LEU:N	2.51	0.44
1:A:115:LYS:HD3	1:A:115:LYS:N	2.31	0.44
1:A:458:ARG:HB2	1:B:117:THR:HB	1.99	0.44
1:B:244:MET:HE3	1:B:244:MET:HB2	1.74	0.44
1:B:296:THR:O	1:B:296:THR:OG1	2.24	0.44
1:B:352:LYS:O	1:B:356:SER:HB3	2.17	0.44
1:C:335:ARG:HH21	1:D:118:TYR:HE2	1.65	0.44
1:C:337:ASP:CG	1:C:342:GLN:NE2	2.71	0.44
1:C:345:GLU:CD	1:C:345:GLU:N	2.70	0.44
1:D:419:LEU:HD23	1:D:419:LEU:HA	1.65	0.44
1:C:138:LEU:HD23	1:C:138:LEU:HA	1.83	0.44
1:C:509:ASN:O	1:C:512:ALA:N	2.50	0.44
1:D:137:LEU:HD12	1:D:137:LEU:HA	1.77	0.44
1:A:115:LYS:HA	1:A:118:TYR:CE1	2.53	0.44
1:C:48:PHE:HB2	1:C:124:ARG:HH12	1.82	0.44
1:A:341:LEU:HD12	1:A:392:TYR:CZ	2.53	0.44
1:C:352:LYS:HZ3	1:C:355:ARG:HD3	1.82	0.44
1:C:418:ASP:OD1	1:C:419:LEU:N	2.50	0.44
1:C:115:LYS:HD3	1:C:115:LYS:N	2.33	0.44
1:C:183:ASN:OD1	1:C:183:ASN:N	2.49	0.44
1:D:244:MET:HE3	1:D:244:MET:HB2	1.76	0.44
1:D:485:MET:O	1:D:488:LEU:HB3	2.18	0.44
1:C:46:ARG:NH1	1:C:123:ASP:HA	2.34	0.43
1:C:186:TYR:O	1:C:186:TYR:CG	2.69	0.43
1:C:335:ARG:NH1	1:C:335:ARG:CB	2.73	0.43
1:C:402:GLN:H	1:C:453:THR:HG22	1.83	0.43
1:C:256:TYR:OH	1:D:250:THR:OG1	2.32	0.43
1:A:351:PRO:HD3	1:D:329:HIS:NE2	2.33	0.43
1:B:193:LYS:O	1:B:193:LYS:HG2	2.16	0.43
1:B:199:LEU:HD23	1:B:199:LEU:HA	1.84	0.43
1:C:380:LEU:HD23	1:C:380:LEU:H	1.82	0.43
1:C:352:LYS:HD3	1:C:352:LYS:HA	1.87	0.43
1:A:186:TYR:O	1:A:190:ARG:HG3	2.17	0.43
1:A:193:LYS:HZ3	1:A:193:LYS:CB	2.27	0.43
1:B:104:ILE:HD11	1:B:139:ASP:O	2.18	0.43
1:C:114:ASP:HB3	1:C:117:THR:OG1	2.18	0.43
1:D:300:ARG:H	1:D:300:ARG:HG3	1.63	0.43
1:D:508:GLU:O	1:D:511:LEU:HB3	2.18	0.43
1:B:115:LYS:HE3	1:B:115:LYS:HB3	1.67	0.43
1:B:137:LEU:HD12	1:B:137:LEU:HA	1.78	0.43
1:B:379:ASP:HA	1:B:382:PHE:CD2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:497:ASP:H	1:B:500:MET:HE2	1.83	0.43
1:C:342:GLN:HB3	1:C:342:GLN:HE21	1.59	0.43
1:B:108:PHE:HE1	1:B:131:TYR:HD2	1.66	0.43
1:C:466:ASN:OD1	1:C:466:ASN:N	2.49	0.43
1:D:132:LEU:HA	1:D:136:PHE:HB3	2.01	0.43
1:A:114:ASP:HB3	1:A:117:THR:HG22	2.00	0.43
1:B:324:ASP:OD1	1:B:325:GLN:N	2.52	0.43
1:B:59:ILE:HD12	1:B:59:ILE:HA	1.87	0.42
1:B:311:ASN:OD1	1:B:312:PHE:N	2.52	0.42
1:B:313:ALA:O	1:B:317:HIS:N	2.52	0.42
1:B:404:GLU:OE2	1:B:405:ALA:N	2.51	0.42
1:C:509:ASN:OD1	1:C:510:MET:N	2.52	0.42
1:D:103:ASP:O	1:D:107:THR:HG23	2.19	0.42
1:D:420:VAL:HG22	1:D:427:GLU:HB2	2.01	0.42
1:B:233:GLU:OE1	1:B:233:GLU:N	2.52	0.42
1:B:236:LEU:HD12	1:B:236:LEU:HA	1.81	0.42
1:B:410:TYR:HB2	1:B:439:ILE:HD11	2.01	0.42
1:D:341:LEU:HA	1:D:341:LEU:HD23	1.79	0.42
1:D:379:ASP:O	1:D:382:PHE:HB2	2.19	0.42
1:D:410:TYR:HB2	1:D:439:ILE:HD11	1.99	0.42
1:D:417:ALA:O	1:D:433:VAL:N	2.52	0.42
2:D:901:POV:C1	2:D:901:POV:C31	2.97	0.42
1:B:301:ASN:HD22	1:B:301:ASN:C	2.22	0.42
1:C:409:PHE:HE1	1:C:465:MET:HG2	1.84	0.42
1:A:139:ASP:OD2	1:A:169:ARG:NH2	2.43	0.42
1:A:150:MET:SD	1:A:157:TYR:HB2	2.59	0.42
1:A:466:ASN:ND2	1:A:469:THR:HG22	2.35	0.42
1:D:469:THR:OG1	1:D:470:PHE:N	2.52	0.42
1:A:186:TYR:CE2	1:A:190:ARG:CD	3.02	0.42
1:A:501:THR:O	1:A:504:LEU:HB2	2.20	0.42
1:B:227:ASN:OD1	1:B:227:ASN:N	2.53	0.42
1:C:179:GLU:HB2	1:C:180:LYS:HZ3	1.85	0.42
1:C:337:ASP:HA	1:C:342:GLN:HE21	1.85	0.42
1:C:354:ILE:HD12	1:C:357:SER:HB3	2.02	0.42
1:C:492:LEU:HD12	1:C:495:MET:SD	2.59	0.42
1:D:499:VAL:O	1:D:502:ASN:HB3	2.20	0.42
1:C:78:GLU:HG3	1:C:82:LEU:HD12	2.02	0.42
1:C:193:LYS:O	1:C:193:LYS:HG2	2.20	0.42
1:C:193:LYS:HE3	2:C:901:POV:H3A	2.01	0.42
1:D:318:LEU:HB2	1:D:319:PRO:HD2	2.01	0.42
1:D:387:GLU:OE2	1:D:473:ILE:HD11	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:507:ILE:O	1:D:510:MET:HB2	2.20	0.42
1:A:190:ARG:HH12	1:A:193:LYS:CE	2.33	0.42
1:A:488:LEU:O	1:A:492:LEU:N	2.52	0.42
1:D:501:THR:O	1:D:504:LEU:HB3	2.20	0.42
1:D:465:MET:SD	1:D:470:PHE:HB2	2.60	0.42
1:A:306:ILE:HG22	1:B:182:ARG:HD3	2.02	0.41
1:B:370:VAL:HG21	1:B:411:ILE:HD13	2.02	0.41
1:C:351:PRO:HD2	1:C:354:ILE:HG21	1.98	0.41
1:D:56:LYS:O	1:D:59:ILE:HG22	2.20	0.41
1:D:319:PRO:HA	1:D:320:PRO:HD3	1.96	0.41
1:A:244:MET:HE3	1:A:244:MET:HB2	1.75	0.41
1:A:485:MET:O	1:A:489:LEU:HG	2.19	0.41
1:D:218:ASN:ND2	1:D:221:LYS:HG3	2.36	0.41
1:B:396:LYS:HZ2	1:C:354:ILE:HD13	1.86	0.41
1:D:333:LYS:HE2	1:D:333:LYS:HB3	1.89	0.41
1:A:497:ASP:HB2	1:A:500:MET:HB2	2.02	0.41
1:B:345:GLU:OE2	1:B:345:GLU:CA	2.69	0.41
1:B:376:VAL:HG21	1:B:380:LEU:HD22	2.01	0.41
1:C:190:ARG:HA	1:C:190:ARG:HD2	1.30	0.41
1:C:193:LYS:NZ	2:C:901:POV:H3A	2.35	0.41
1:D:297:SER:O	1:D:300:ARG:CD	2.51	0.41
1:D:330:LEU:HD13	1:D:330:LEU:HA	1.81	0.41
1:C:163:LEU:C	1:C:165:LEU:H	2.24	0.41
1:C:502:ASN:O	1:C:505:LEU:HG	2.21	0.41
1:D:421:ASP:OD1	1:D:421:ASP:N	2.45	0.41
1:A:332:LEU:HD12	1:A:336:THR:CG2	2.50	0.41
1:A:409:PHE:HE1	1:A:465:MET:HG2	1.84	0.41
1:B:308:ALA:O	1:C:346:THR:HG21	2.20	0.41
1:B:312:PHE:CE1	1:C:343:GLN:HB3	2.56	0.41
1:C:347:LEU:O	1:C:355:ARG:HG3	2.20	0.41
1:C:379:ASP:N	1:C:379:ASP:OD1	2.53	0.41
1:B:418:ASP:HA	1:B:432:GLU:HA	2.02	0.41
1:C:402:GLN:N	1:C:453:THR:HG22	2.35	0.41
1:A:186:TYR:OH	1:A:190:ARG:HD2	2.21	0.41
1:A:380:LEU:O	1:A:383:GLN:HG3	2.20	0.41
1:D:326:MET:HG3	1:D:327:LEU:H	1.86	0.41
1:D:331:CYS:SG	1:D:332:LEU:N	2.93	0.41
1:A:182:ARG:HH22	1:D:307:GLN:HA	1.85	0.41
1:A:256:TYR:OH	1:B:250:THR:OG1	2.30	0.41
1:A:334:TYR:HA	1:A:337:ASP:HB3	2.03	0.41
1:A:345:GLU:CA	1:A:345:GLU:OE2	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:352:LYS:HZ1	1:A:356:SER:HB2	1.84	0.41
1:B:186:TYR:OH	1:B:190:ARG:HD2	2.21	0.41
1:C:64:LEU:HD23	1:C:64:LEU:HA	1.84	0.41
1:A:372:LEU:HD23	1:A:373:PHE:CE1	2.56	0.41
1:C:163:LEU:HD23	1:C:163:LEU:HA	1.88	0.41
1:C:492:LEU:HD21	1:C:503:VAL:CB	2.47	0.41
1:D:410:TYR:O	1:D:438:ILE:HG13	2.21	0.41
1:A:274:MET:CE	1:D:249:THR:HG22	2.50	0.40
1:B:232:LEU:HD23	1:B:232:LEU:HA	1.94	0.40
1:B:296:THR:CA	1:B:299:THR:HG23	2.51	0.40
1:C:54:ASP:OD1	1:C:56:LYS:N	2.53	0.40
1:C:149:ALA:O	1:C:152:ILE:HG13	2.21	0.40
1:D:227:ASN:N	1:D:227:ASN:OD1	2.54	0.40
1:D:486:ASN:O	1:D:490:GLN:HG3	2.21	0.40
1:A:448:ARG:NH2	1:A:503:VAL:HA	2.32	0.40
1:B:54:ASP:OD1	1:B:55:HIS:N	2.53	0.40
1:C:378:ASN:OD1	1:C:378:ASN:N	2.54	0.40
1:D:320:PRO:HA	1:D:323:GLN:CG	2.52	0.40
1:D:333:LYS:HA	1:D:336:THR:HG22	2.04	0.40
1:D:408:ASP:N	1:D:408:ASP:OD1	2.55	0.40
1:A:242:THR:O	1:A:245:TYR:HB3	2.21	0.40
1:C:231:PHE:O	1:C:239:ARG:HD3	2.21	0.40
1:A:409:PHE:CD2	1:A:438:ILE:HD11	2.56	0.40
1:B:275:LEU:HD23	1:B:275:LEU:HA	1.87	0.40
1:C:46:ARG:HH12	1:C:123:ASP:HA	1.87	0.40
1:D:466:ASN:OD1	1:D:467:ARG:N	2.54	0.40
1:A:46:ARG:HH12	1:A:123:ASP:HA	1.87	0.40
1:A:89:LEU:HA	1:A:92:THR:HG23	2.03	0.40
1:A:264:THR:O	1:A:268:ILE:HG13	2.22	0.40
1:B:432:GLU:OE1	1:B:432:GLU:N	2.52	0.40
1:C:46:ARG:HG2	1:C:47:ARG:H	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	468/895 (52%)	435 (93%)	32 (7%)	1 (0%)	47	73
1	B	467/895 (52%)	449 (96%)	18 (4%)	0	100	100
1	C	468/895 (52%)	431 (92%)	35 (8%)	2 (0%)	34	60
1	D	467/895 (52%)	442 (95%)	25 (5%)	0	100	100
All	All	1870/3580 (52%)	1757 (94%)	110 (6%)	3 (0%)	50	73

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	343	GLN
1	A	343	GLN
1	C	504	LEU

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	420/776 (54%)	372 (89%)	48 (11%)	5	13
1	B	419/776 (54%)	372 (89%)	47 (11%)	6	13
1	C	420/776 (54%)	371 (88%)	49 (12%)	5	12
1	D	419/776 (54%)	375 (90%)	44 (10%)	7	16
All	All	1678/3104 (54%)	1490 (89%)	188 (11%)	9	13

All (188) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	47	ARG
1	A	83	ARG
1	A	84	LYS
1	A	92	THR
1	A	115	LYS

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PROTEIN DATA BANK

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Mol	Chain	Res	Type
1	A	125	LYS
1	A	135	TRP
1	A	142	SER
1	A	159	LEU
1	A	180	LYS
1	A	183	ASN
1	A	190	ARG
1	A	191	CYS
1	A	193	LYS
1	A	217	SER
1	A	221	LYS
1	A	228	VAL
1	A	230	ASN
1	A	243	SER
1	A	248	ILE
1	A	249	THR
1	A	258	ASP
1	A	264	THR
1	A	288	MET
1	A	299	THR
1	A	300	ARG
1	A	316	ASN
1	A	322	LEU
1	A	336	THR
1	A	339	GLU
1	A	341	LEU
1	A	342	GLN
1	A	343	GLN
1	A	345	GLU
1	A	347	LEU
1	A	355	ARG
1	A	367	MET
1	A	374	ARG
1	A	383	GLN
1	A	402	GLN
1	A	431	ARG
1	A	432	GLU
1	A	452	PHE
1	A	464	ARG
1	A	467	ARG
1	A	480	ASP
1	A	488	LEU

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Mol	Chain	Res	Type
1	A	497	ASP
1	B	60	TRP
1	B	63	PHE
1	B	83	ARG
1	B	92	THR
1	B	115	LYS
1	B	117	THR
1	B	124	ARG
1	B	141	VAL
1	B	146	SER
1	B	164	ARG
1	B	217	SER
1	B	218	ASN
1	B	235	SER
1	B	243	SER
1	B	248	ILE
1	B	249	THR
1	B	288	MET
1	B	296	THR
1	B	298	ARG
1	B	299	THR
1	B	300	ARG
1	B	301	ASN
1	B	304	ASP
1	B	311	ASN
1	B	314	HIS
1	B	318	LEU
1	B	338	SER
1	B	339	GLU
1	B	341	LEU
1	B	342	GLN
1	B	344	GLN
1	B	345	GLU
1	B	346	THR
1	B	348	ASP
1	B	352	LYS
1	B	356	SER
1	B	377	SER
1	B	389	LYS
1	B	401	LEU
1	B	420	VAL
1	B	434	LYS

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Mol	Chain	Res	Type
1	B	446	CYS
1	B	447	TYR
1	B	471	LEU
1	B	487	ASN
1	B	497	ASP
1	B	501	THR
1	C	56	LYS
1	C	78	GLU
1	C	90	SER
1	C	92	THR
1	C	115	LYS
1	C	116	SER
1	C	135	TRP
1	C	142	SER
1	C	159	LEU
1	C	180	LYS
1	C	182	ARG
1	C	183	ASN
1	C	185	ASN
1	C	190	ARG
1	C	191	CYS
1	C	217	SER
1	C	221	LYS
1	C	228	VAL
1	C	249	THR
1	C	258	ASP
1	C	264	THR
1	C	304	ASP
1	C	314	HIS
1	C	316	ASN
1	C	324	ASP
1	C	331	CYS
1	C	335	ARG
1	C	336	THR
1	C	339	GLU
1	C	341	LEU
1	C	342	GLN
1	C	343	GLN
1	C	345	GLU
1	C	350	LEU
1	C	352	LYS
1	C	357	SER

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Mol	Chain	Res	Type
1	C	367	MET
1	C	383	GLN
1	C	421	ASP
1	C	424	THR
1	C	431	ARG
1	C	432	GLU
1	C	441	GLU
1	C	444	VAL
1	C	447	TYR
1	C	461	GLN
1	C	497	ASP
1	C	504	LEU
1	C	513	ARG
1	D	47	ARG
1	D	60	TRP
1	D	63	PHE
1	D	90	SER
1	D	105	ILE
1	D	115	LYS
1	D	117	THR
1	D	146	SER
1	D	183	ASN
1	D	193	LYS
1	D	217	SER
1	D	218	ASN
1	D	235	SER
1	D	243	SER
1	D	248	ILE
1	D	249	THR
1	D	251	LEU
1	D	288	MET
1	D	298	ARG
1	D	300	ARG
1	D	311	ASN
1	D	314	HIS
1	D	317	HIS
1	D	318	LEU
1	D	323	GLN
1	D	337	ASP
1	D	339	GLU
1	D	341	LEU
1	D	346	THR

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Mol	Chain	Res	Type
1	D	347	LEU
1	D	365	SER
1	D	377	SER
1	D	398	ASP
1	D	404	GLU
1	D	418	ASP
1	D	419	LEU
1	D	434	LYS
1	D	441	GLU
1	D	446	CYS
1	D	477	ASN
1	D	493	LYS
1	D	497	ASP
1	D	506	GLU
1	D	509	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	216	ASN
1	A	260	HIS
1	A	294	HIS
1	A	307	GLN
1	A	323	GLN
1	A	325	GLN
1	A	383	GLN
1	A	402	GLN
1	A	403	ASN
1	A	466	ASN
1	A	472	ASN
1	A	502	ASN
1	B	216	ASN
1	B	218	ASN
1	B	260	HIS
1	B	472	ASN
1	B	475	GLN
1	C	185	ASN
1	C	216	ASN
1	C	260	HIS
1	C	294	HIS
1	C	323	GLN
1	C	342	GLN

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Mol	Chain	Res	Type
1	C	450	GLN
1	C	496	ASN
1	D	126	GLN
1	D	216	ASN
1	D	218	ASN
1	D	260	HIS
1	D	311	ASN
1	D	323	GLN
1	D	383	GLN
1	D	477	ASN
1	D	509	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 7 ligands modelled in this entry, 3 are monoatomic - leaving 4 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	$\#|Z| > 2$
2	POV	C	901	-	38,38,51	0.51	0	42,43,59	0.68	2 (4%)
2	POV	D	901	-	38,38,51	0.54	0	42,43,59	0.87	3 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
2	POV	B	901	-	38,38,51	0.57	0	42,43,59	0.83	1 (2%)
2	POV	A	901	-	38,38,51	0.55	0	42,43,59	0.69	2 (4%)

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
2	POV	C	901	-	-	20/40/40/55	-
2	POV	D	901	-	-	25/40/40/55	-
2	POV	B	901	-	-	18/40/40/55	-
2	POV	A	901	-	-	19/40/40/55	-

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	901	POV	O21-C21-C22	3.35	118.71	111.50
2	C	901	POV	O13-P-O14	2.65	121.04	110.68
2	A	901	POV	O13-P-O14	2.62	120.95	110.68
2	B	901	POV	O13-P-O14	2.57	120.74	110.68
2	D	901	POV	O13-P-O14	2.47	120.34	110.68
2	C	901	POV	O21-C21-C22	2.36	116.60	111.50
2	D	901	POV	O13-P-O11	2.25	112.71	106.73
2	A	901	POV	O21-C21-C22	2.17	116.17	111.50

There are no chirality outliers.

All (82) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	901	POV	C1-C2-O21-C21
2	B	901	POV	C1-O11-P-O12
2	B	901	POV	C1-O11-P-O13
2	B	901	POV	C211-C210-C29-C28
2	C	901	POV	C22-C21-O21-C2
2	D	901	POV	C1-O11-P-O12
2	D	901	POV	C1-O11-P-O13
2	D	901	POV	C1-O11-P-O14
2	D	901	POV	O32-C31-O31-C3

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Mol	Chain	Res	Type	Atoms
2	D	901	POV	C2-C3-O31-C31
2	D	901	POV	C32-C31-O31-C3
2	C	901	POV	O22-C21-O21-C2
2	A	901	POV	C22-C21-O21-C2
2	A	901	POV	O22-C21-O21-C2
2	D	901	POV	C22-C21-O21-C2
2	D	901	POV	C31-C32-C33-C34
2	C	901	POV	C31-C32-C33-C34
2	D	901	POV	O22-C21-O21-C2
2	B	901	POV	C311-C310-C39-C38
2	C	901	POV	C32-C31-O31-C3
2	D	901	POV	C311-C310-C39-C38
2	D	901	POV	C32-C33-C34-C35
2	D	901	POV	C23-C24-C25-C26
2	D	901	POV	C24-C25-C26-C27
2	B	901	POV	C22-C23-C24-C25
2	D	901	POV	C34-C35-C36-C37
2	C	901	POV	O32-C31-O31-C3
2	D	901	POV	C35-C36-C37-C38
2	C	901	POV	C35-C36-C37-C38
2	D	901	POV	C26-C27-C28-C29
2	B	901	POV	C32-C31-O31-C3
2	C	901	POV	C24-C25-C26-C27
2	A	901	POV	C24-C25-C26-C27
2	D	901	POV	C311-C312-C313-C314
2	D	901	POV	C310-C311-C312-C313
2	D	901	POV	O11-C1-C2-C3
2	B	901	POV	C31-C32-C33-C34
2	C	901	POV	C34-C35-C36-C37
2	A	901	POV	C311-C312-C313-C314
2	B	901	POV	C1-O11-P-O14
2	B	901	POV	O32-C31-O31-C3
2	A	901	POV	C39-C310-C311-C312
2	B	901	POV	C37-C38-C39-C310
2	D	901	POV	C37-C38-C39-C310
2	B	901	POV	C35-C36-C37-C38
2	C	901	POV	C311-C312-C313-C314
2	A	901	POV	C313-C314-C315-C316
2	B	901	POV	O11-C1-C2-O21
2	D	901	POV	O11-C1-C2-O21
2	A	901	POV	C33-C34-C35-C36
2	D	901	POV	C25-C26-C27-C28

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Mol	Chain	Res	Type	Atoms
2	A	901	POV	C311-C310-C39-C38
2	A	901	POV	C310-C311-C312-C313
2	A	901	POV	C37-C38-C39-C310
2	A	901	POV	C211-C210-C29-C28
2	C	901	POV	C211-C210-C29-C28
2	D	901	POV	C211-C210-C29-C28
2	A	901	POV	O11-C1-C2-C3
2	C	901	POV	C1-C2-O21-C21
2	C	901	POV	O11-C1-C2-O21
2	B	901	POV	O11-C1-C2-C3
2	C	901	POV	O11-C1-C2-C3
2	A	901	POV	O11-C1-C2-O21
2	C	901	POV	C2-C1-O11-P
2	B	901	POV	C32-C33-C34-C35
2	A	901	POV	C22-C23-C24-C25
2	C	901	POV	C1-O11-P-O14
2	D	901	POV	C27-C28-C29-C210
2	C	901	POV	C39-C310-C311-C312
2	A	901	POV	C2-C1-O11-P
2	A	901	POV	C27-C28-C29-C210
2	C	901	POV	C27-C28-C29-C210
2	B	901	POV	C313-C314-C315-C316
2	C	901	POV	C311-C310-C39-C38
2	B	901	POV	C1-C2-O21-C21
2	D	901	POV	C1-C2-O21-C21
2	C	901	POV	C1-C2-C3-O31
2	B	901	POV	C27-C28-C29-C210
2	C	901	POV	C1-O11-P-O12
2	A	901	POV	C312-C313-C314-C315
2	A	901	POV	C34-C35-C36-C37
2	B	901	POV	O31-C31-C32-C33

There are no ring outliers.

3 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	901	POV	5	0
2	D	901	POV	2	0
2	B	901	POV	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 POV C 901

Bond lengths / Bond angles / Torsions / Rings

Ligand POV D 901

Bond lengths / Bond angles / Torsions / Rings

Ligand POV B 901

Bond lengths / Bond angles / Torsions / Rings

Ligand POV A 901	
Bond lengths	Bond angles
Torsions	Rings
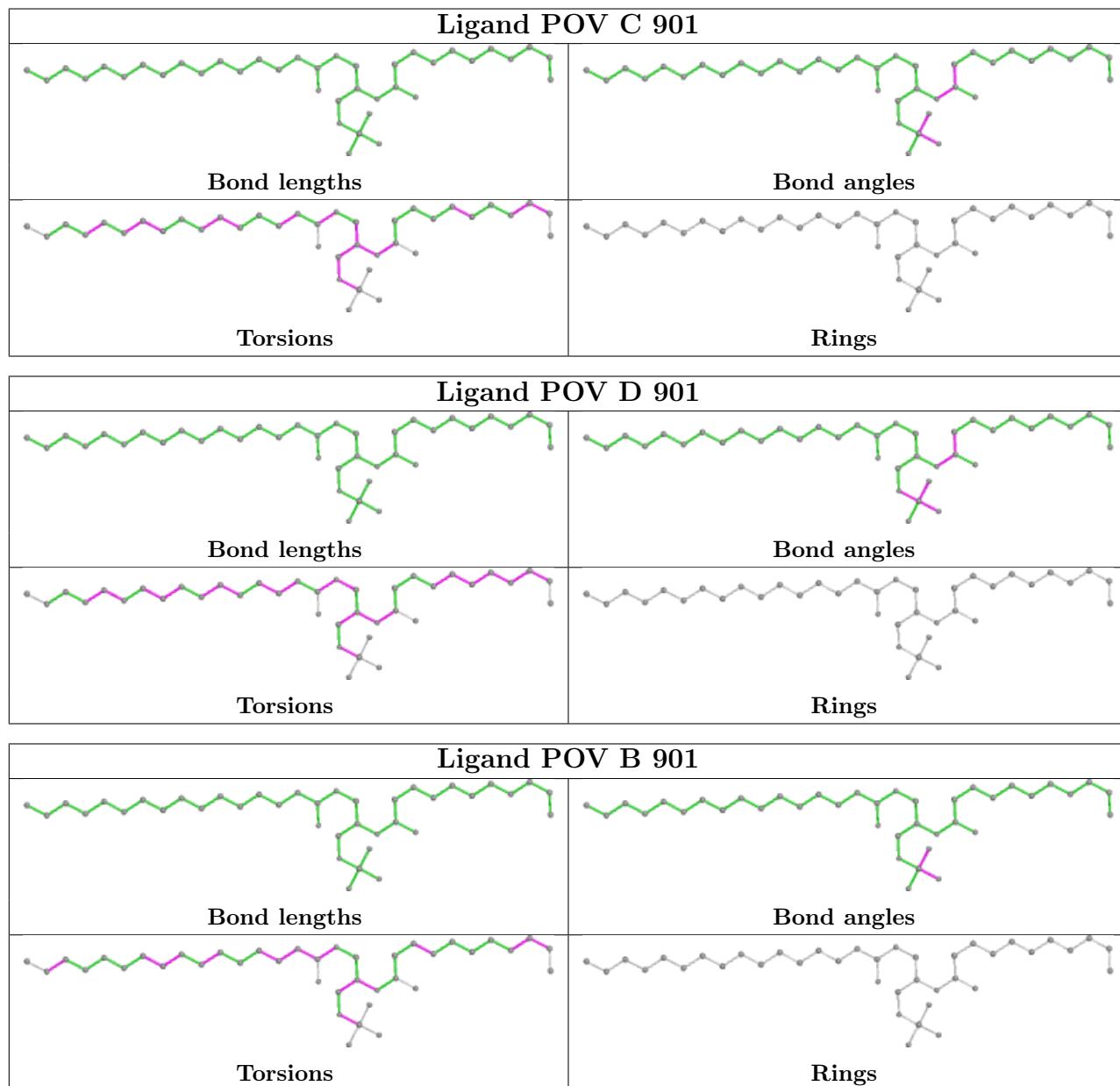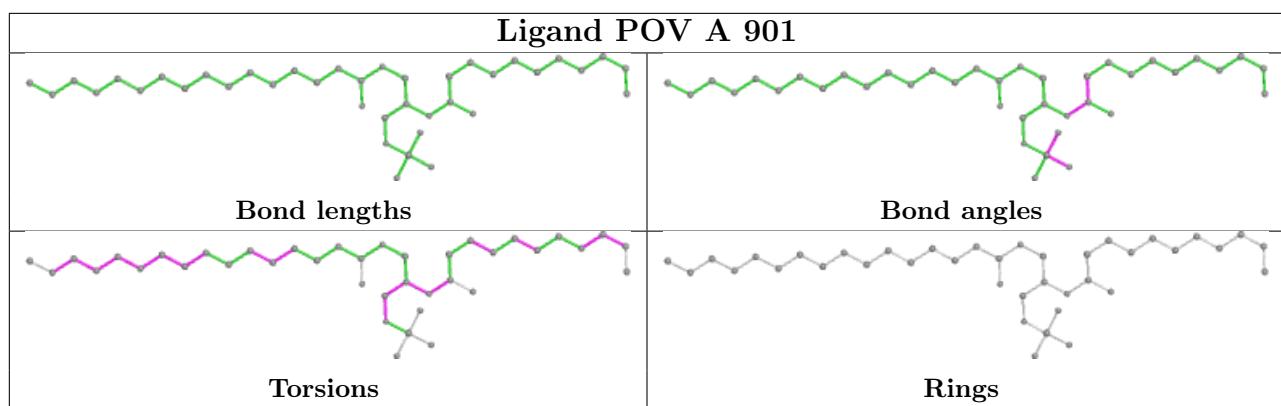
5.7 Other polymers ⓘ

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-32598. 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 |
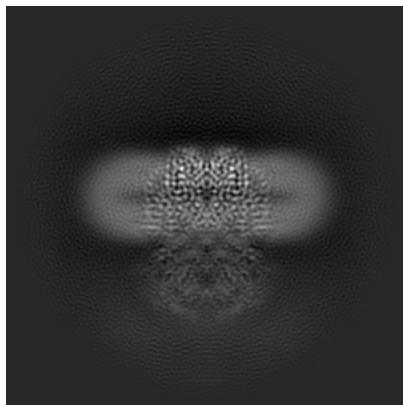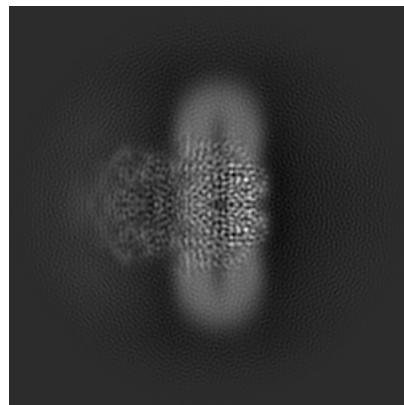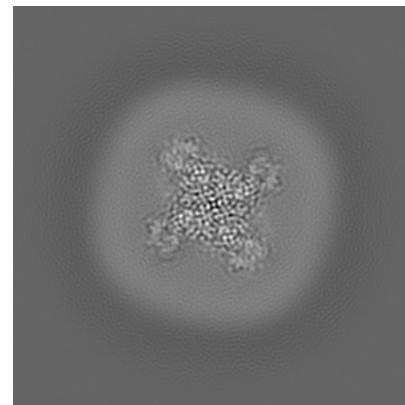
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
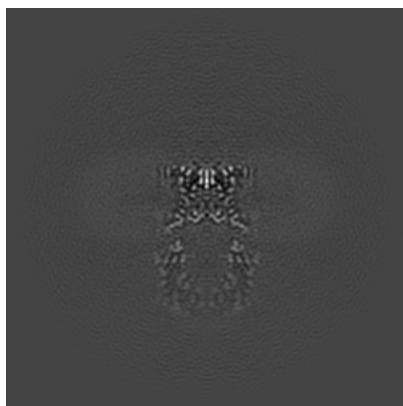
6.2.1 Primary map
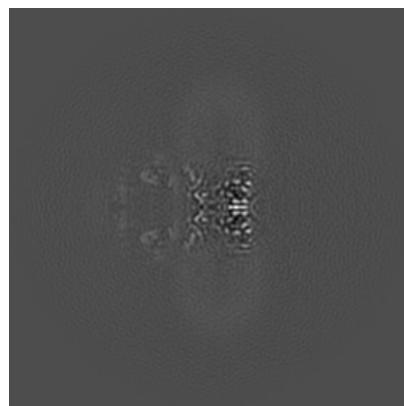
| X Index: 120 | Y Index: 120 | Z Index: 120 |
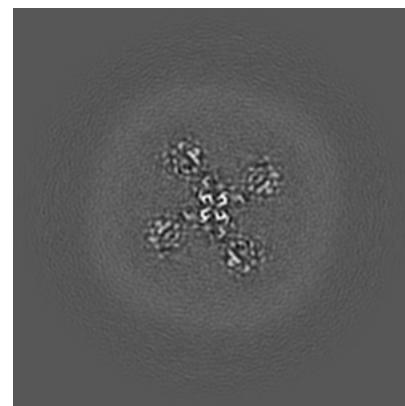
The images above show central slices of the map in three orthogonal directions.

6.3　Largest variance slices ⓘ
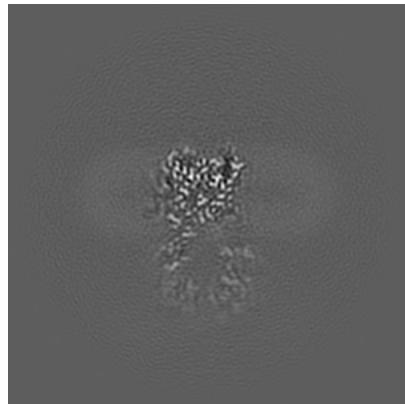
6.3.1　Primary map
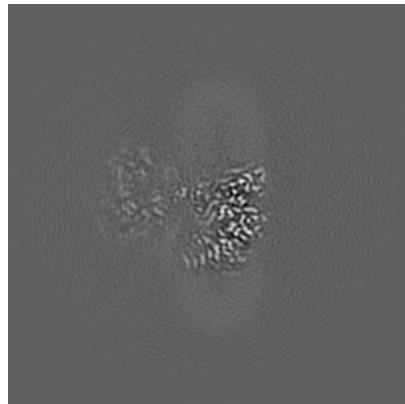
| X Index: 126 | Y Index: 108 | Z Index: 133 |
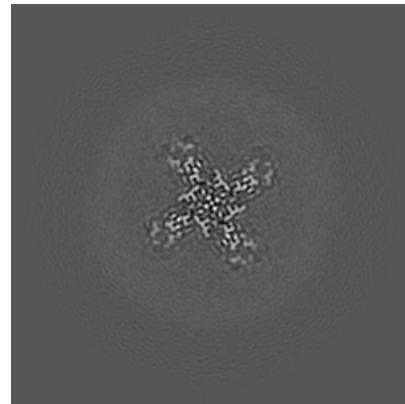
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1　Primary map

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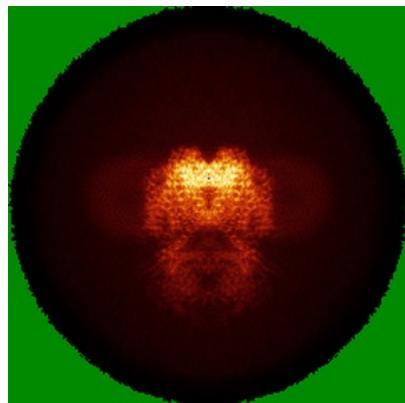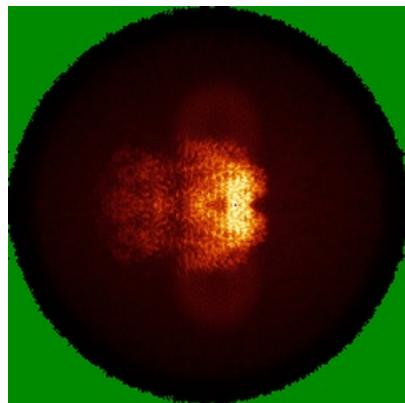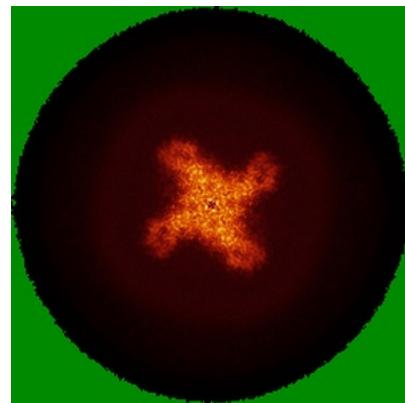
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5　Orthogonal surface views　ⓘ

6.5.1　Primary map

X　　　　　　　　　　Y　　　　　　　　　　Z
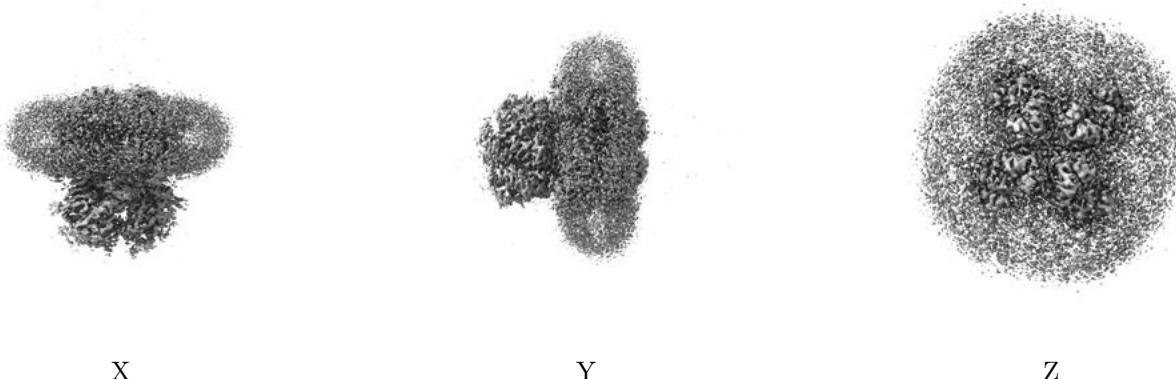
The images above show the 3D surface view of the map at the recommended contour level 0.436. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

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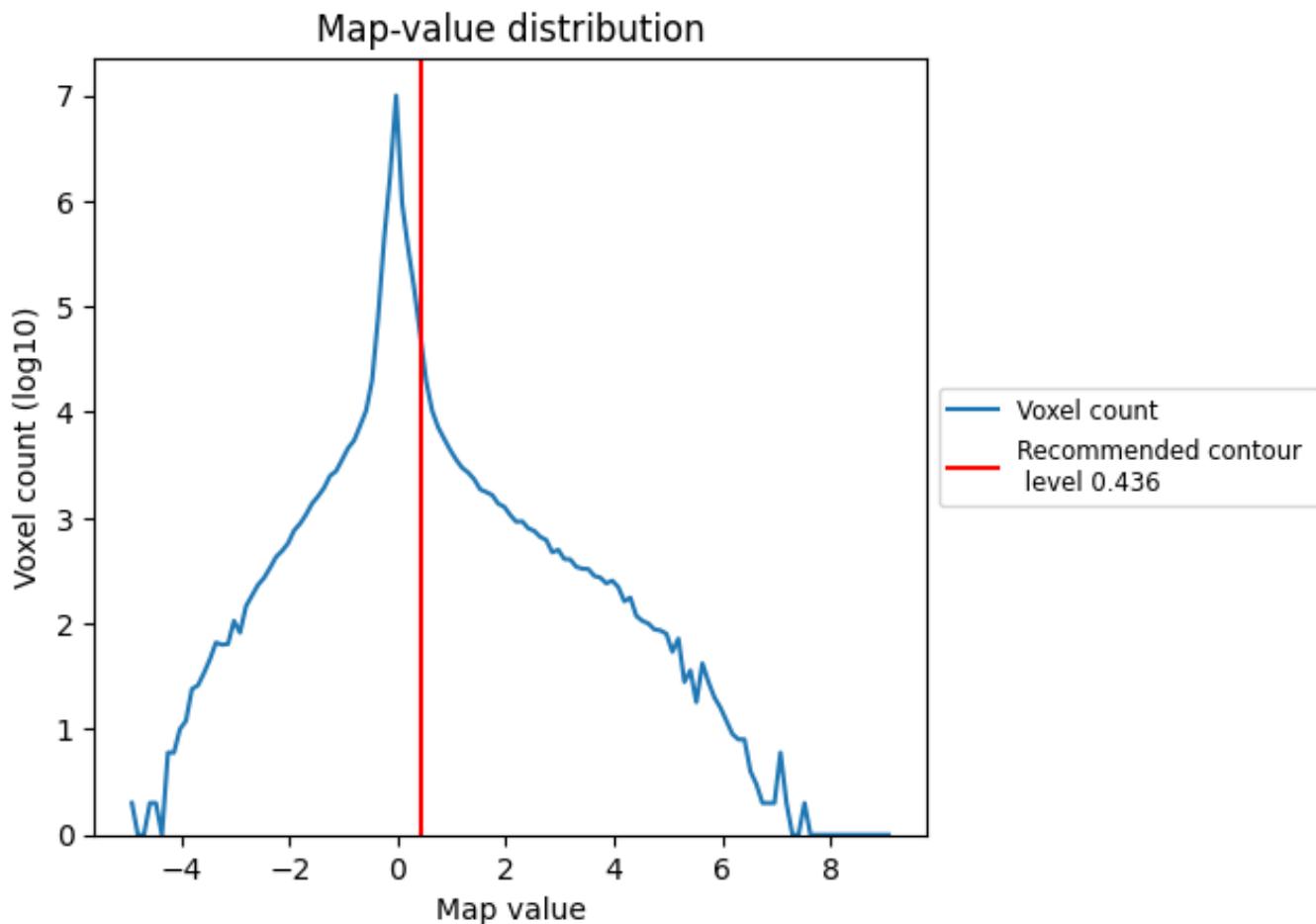
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2　Volume estimate ⓘ
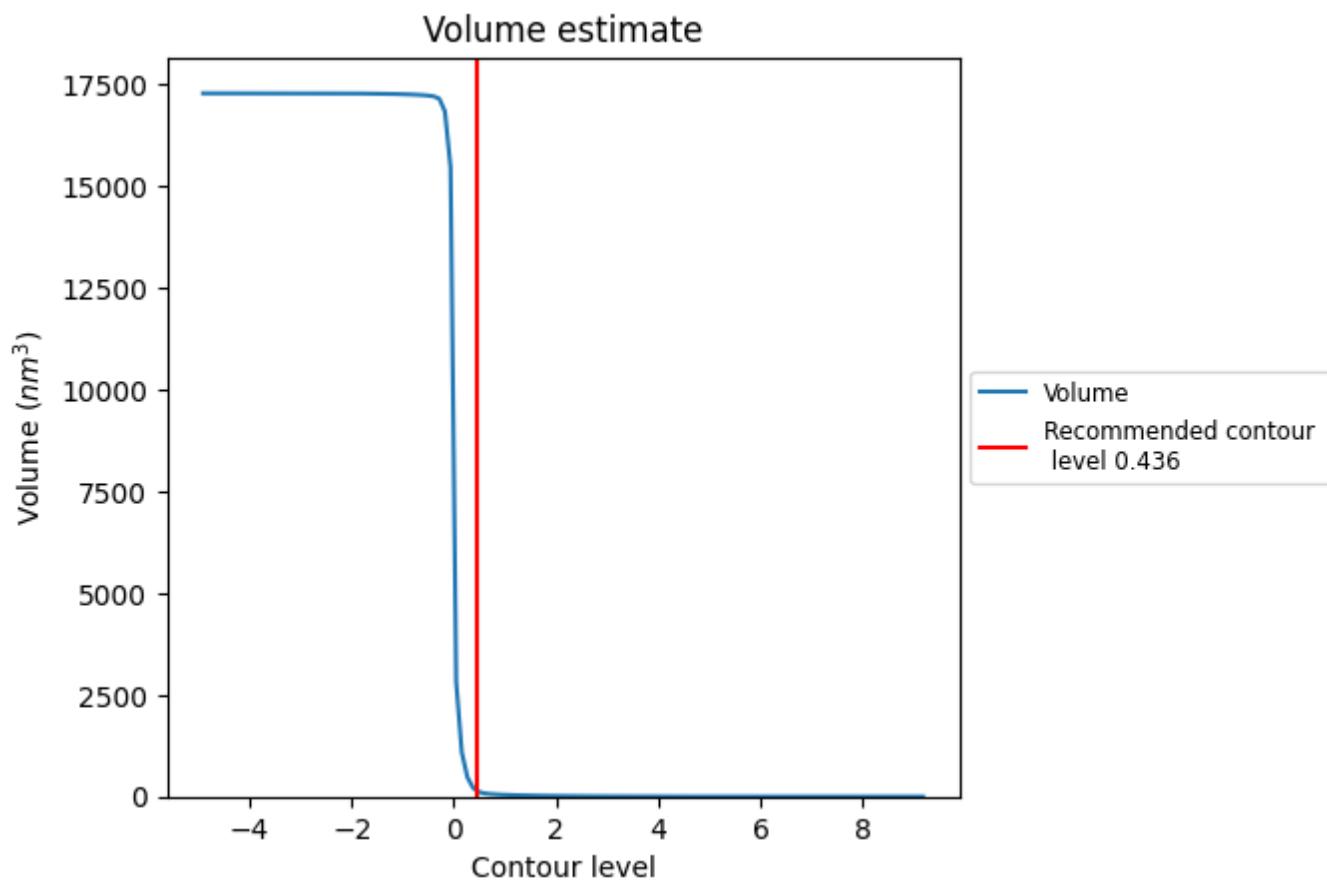
The volume at the recommended contour level is 159 nm^3; this corresponds to an approximate mass of 144 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)
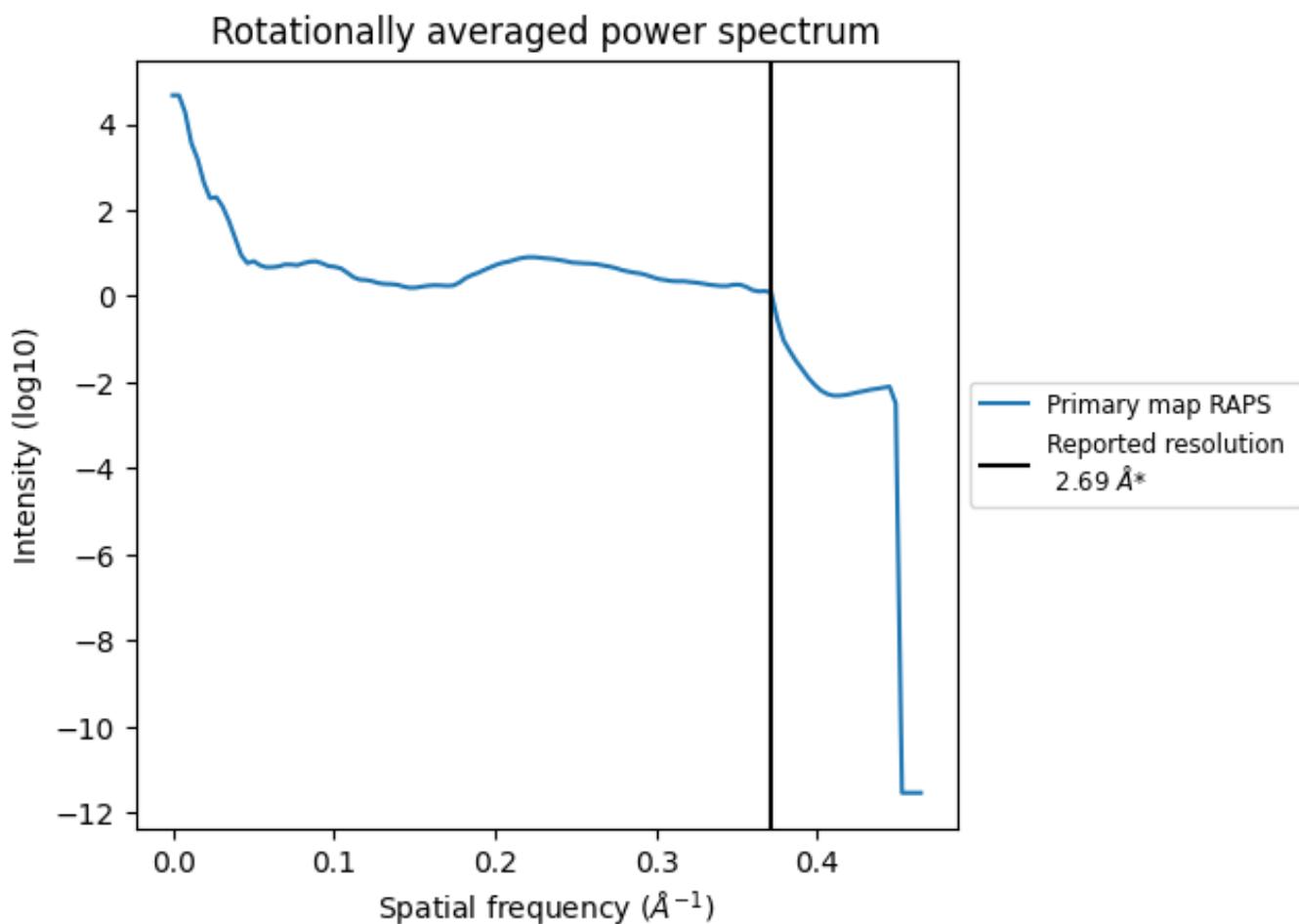
*Reported resolution corresponds to spatial frequency of 0.372 Å^{-1}

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-32598 and PDB model 7WM2. Per-residue inclusion information can be found in section 3 on page 8.

9.1   Map-model overlay ⓘ

X   Y   Z
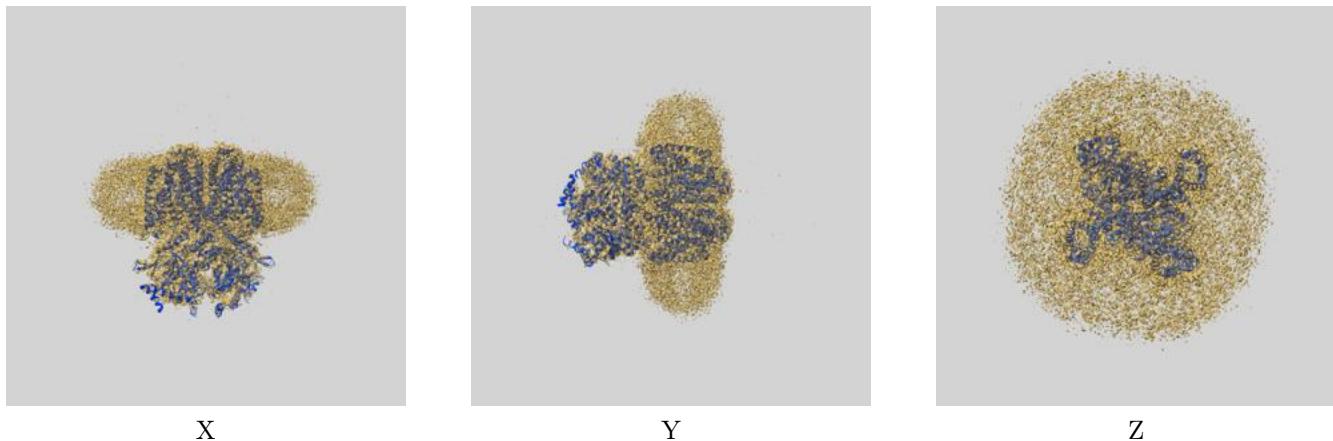
The images above show the 3D surface view of the map at the recommended contour level 0.436 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)

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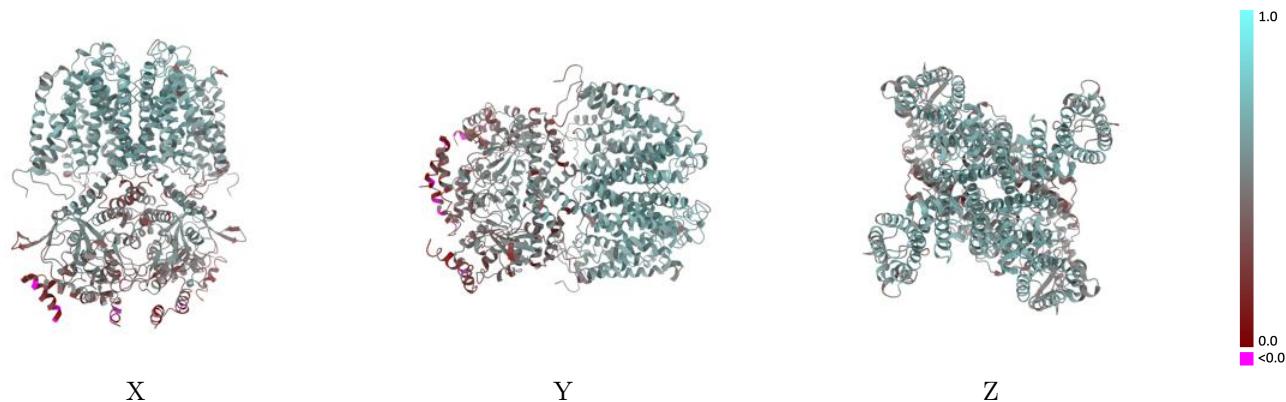
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X   Y   Z
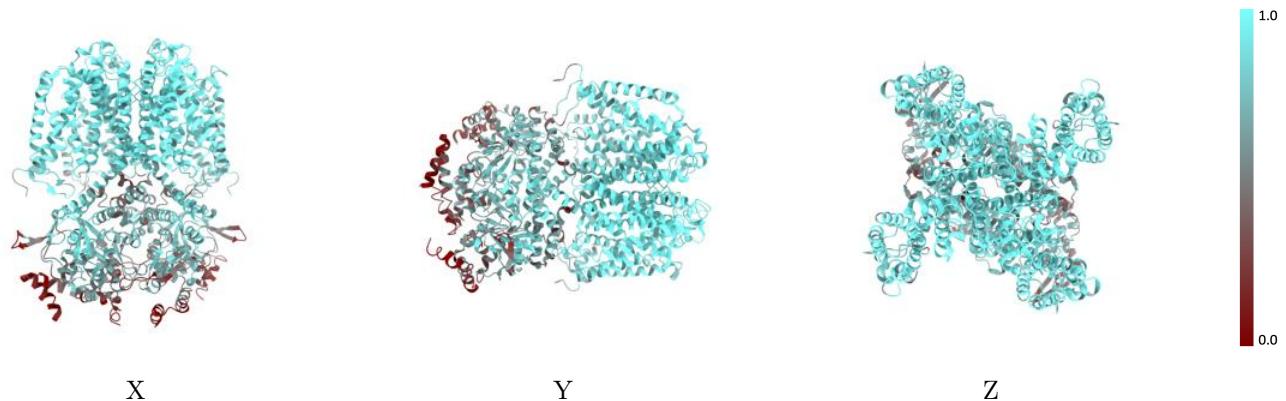
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.436).

9.4　Atom inclusion ⓘ
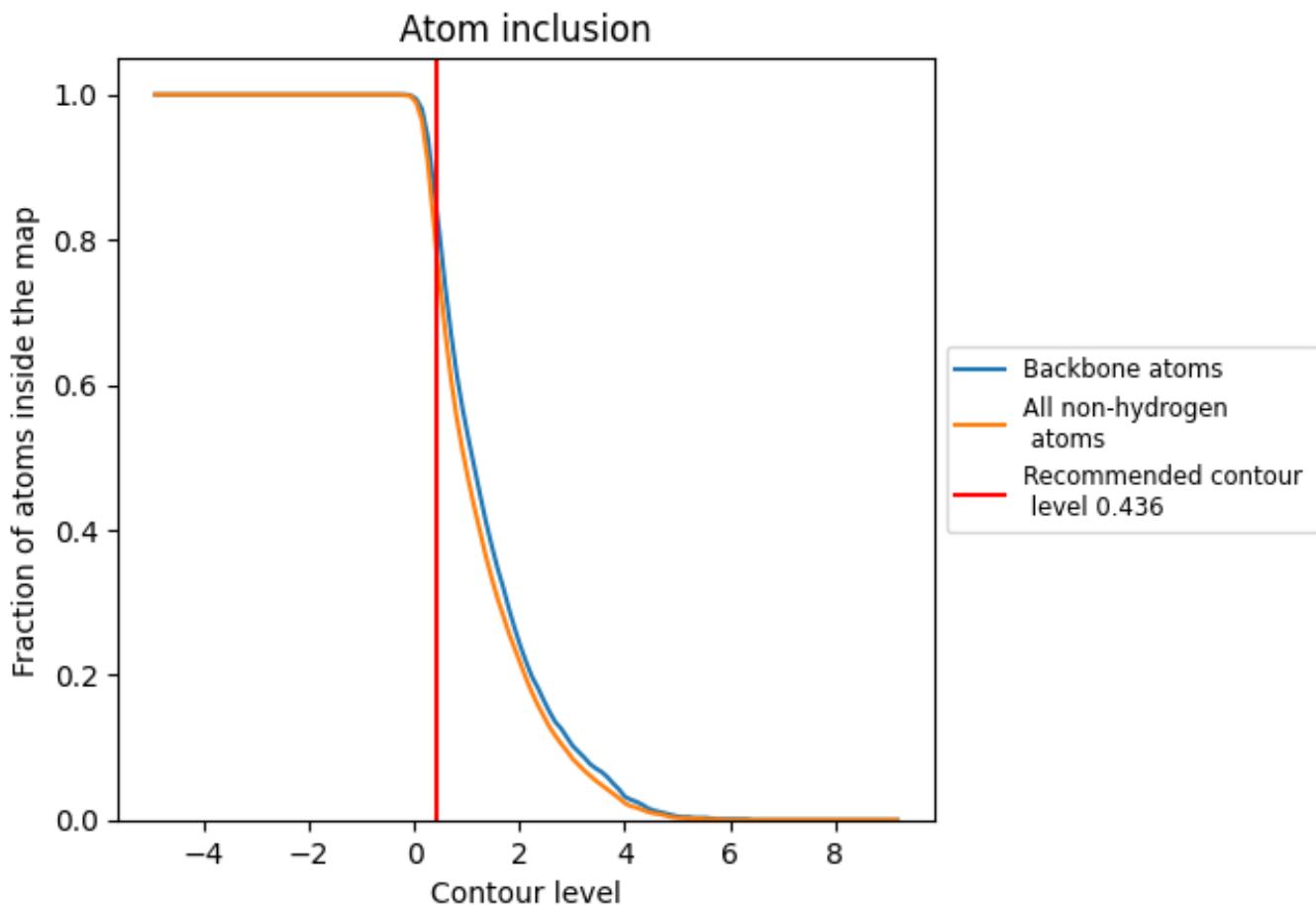
At the recommended contour level, 84% of all backbone atoms, 78% of all non-hydrogen atoms, are inside the map.

9.5   Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.436) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7790	0.5180
A	0.7830	0.5140
B	0.7750	0.5210
C	0.7850	0.5170
D	0.7740	0.5180

1.0

0.0

<0.0