



Full wwPDB EM Validation Report ⓘ

Oct 5, 2026 – 12:51 PM JST

PDB ID : 9X4M / pdb_00009x4m
EMDB ID : EMD-66553
Title : Sld3-CTD Docking on Mcm4-NTD-A
Authors : Yu, D.; Huo, Y.; Dang, S.; Zhai, Y.
Deposited on : 2025-10-11
Resolution : 3.15 Å(reported)
Based on initial model : .

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.dev133
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.2
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.51

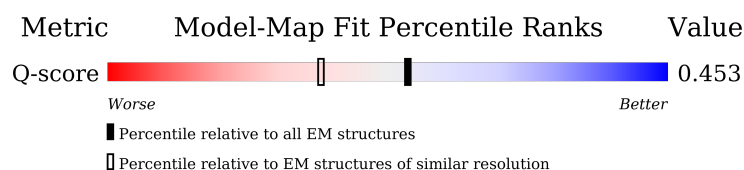
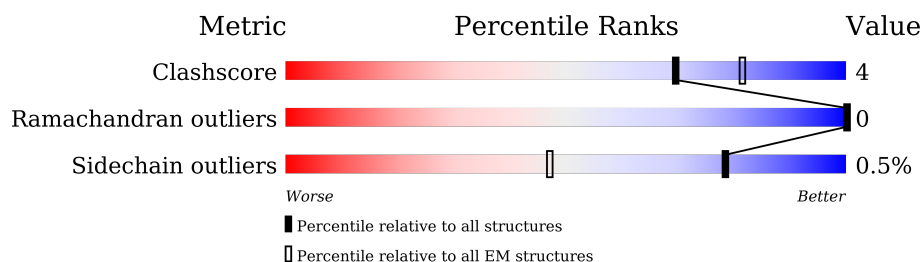
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.15 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	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14486 (2.65 - 3.65)

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 $\leq 5\%$. 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	2	868	
1	B	868	
2	3	971	
2	C	971	

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Mol	Chain	Length	Quality of chain
3	4	933	
3	D	933	
4	5	775	
4	E	775	
5	6	1017	
5	F	1017	
6	7	845	
6	G	845	
7	X	668	

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 62405 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 DNA replication licensing factor MCM2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	628	Total	C	N	O	S	0	0
			4970	3133	883	935	19		
1	B	628	Total	C	N	O	S	0	0
			4970	3133	883	935	19		

- Molecule 2 is a protein called DNA replication licensing factor MCM3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	3	636	Total	C	N	O	S	0	0
			4983	3140	888	942	13		
2	C	636	Total	C	N	O	S	0	0
			4978	3137	888	940	13		

- Molecule 3 is a protein called DNA replication licensing factor MCM4.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	4	669	Total	C	N	O	S	0	0
			5316	3334	917	1035	30		
3	D	670	Total	C	N	O	S	0	0
			5323	3339	918	1036	30		

- Molecule 4 is a protein called Minichromosome maintenance protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	5	658	Total	C	N	O	S	0	0
			5145	3228	882	1010	25		
4	E	657	Total	C	N	O	S	0	0
			5137	3222	881	1009	25		

- Molecule 5 is a protein called DNA replication licensing factor MCM6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	6	650	Total	C	N	O	S	0	0
			5143	3236	898	983	26		
5	F	638	Total	C	N	O	S	0	0
			5052	3184	884	959	25		

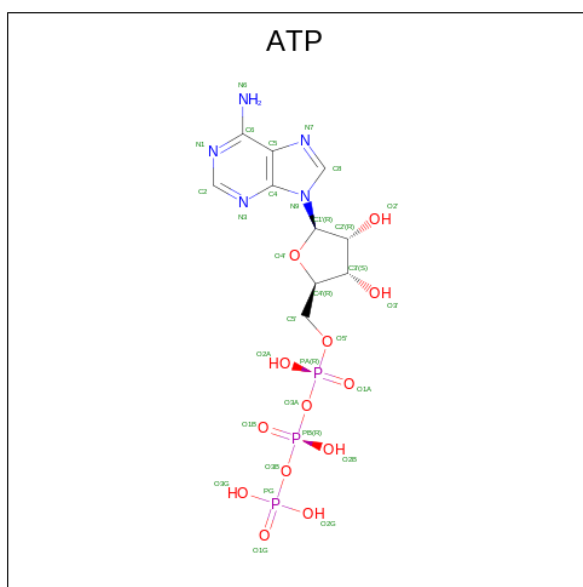
- Molecule 6 is a protein called DNA replication licensing factor MCM7.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	7	699	Total	C	N	O	S	0	0
			5505	3463	952	1059	31		
6	G	694	Total	C	N	O	S	0	0
			5467	3440	947	1049	31		

- Molecule 7 is a protein called DNA replication regulator SLD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	X	12	Total	C	N	O	S	0	0
			102	63	21	17	1		

- Molecule 8 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf
8	2	1	Total	C	N	O	P	0
			31	10	5	13	3	
8	4	1	Total	C	N	O	P	0
			31	10	5	13	3	

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Mol	Chain	Residues	Atoms					AltConf
8	7	1	Total	C	N	O	P	0
			31	10	5	13	3	
8	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
8	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
8	G	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 9 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
9	2	1	Total	Mg	0
			1	1	
9	3	1	Total	Mg	0
			1	1	
9	4	1	Total	Mg	0
			1	1	
9	5	1	Total	Mg	0
			1	1	
9	7	1	Total	Mg	0
			1	1	
9	B	1	Total	Mg	0
			1	1	
9	C	1	Total	Mg	0
			1	1	
9	D	1	Total	Mg	0
			1	1	
9	E	1	Total	Mg	0
			1	1	
9	G	1	Total	Mg	0
			1	1	

- Molecule 10 is ZINC ION (CCD ID: ZN) (formula: Zn).

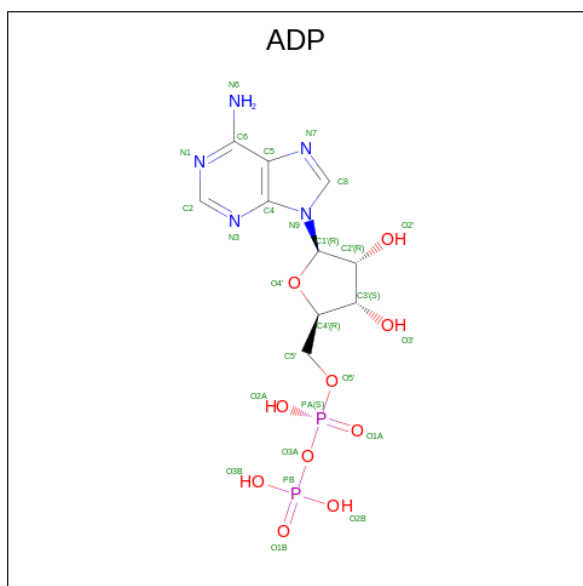
Mol	Chain	Residues	Atoms		AltConf
10	2	1	Total	Zn	0
			1	1	
10	4	1	Total	Zn	0
			1	1	
10	5	1	Total	Zn	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
10	6	1	Total	Zn	0
			1	1	
10	7	1	Total	Zn	0
			1	1	
10	B	1	Total	Zn	0
			1	1	
10	D	1	Total	Zn	0
			1	1	
10	E	1	Total	Zn	0
			1	1	
10	F	1	Total	Zn	0
			1	1	
10	G	1	Total	Zn	0
			1	1	

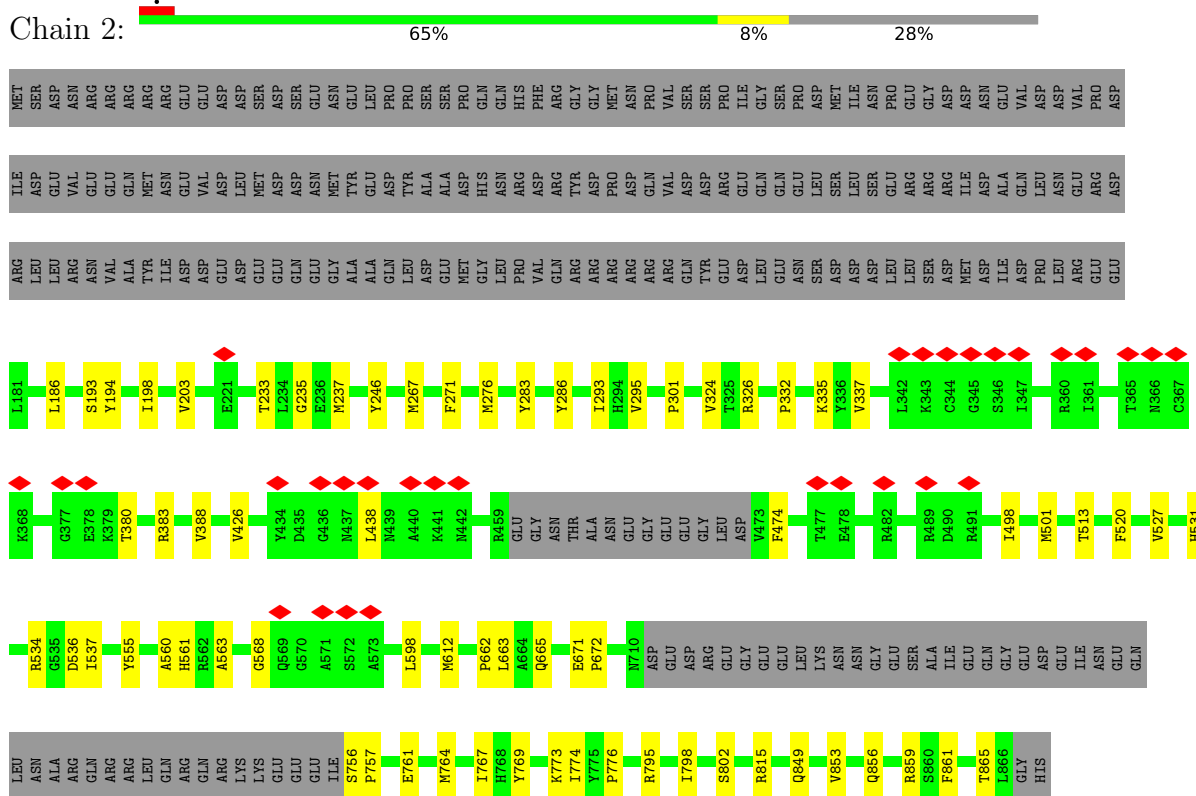
- Molecule 11 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



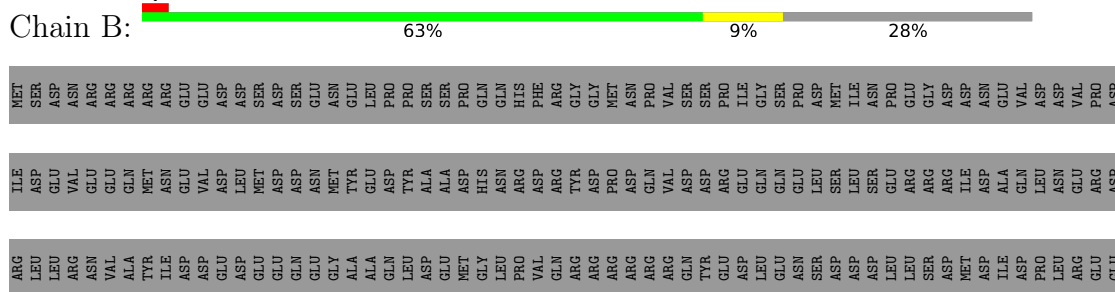
3 Residue-property plots

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

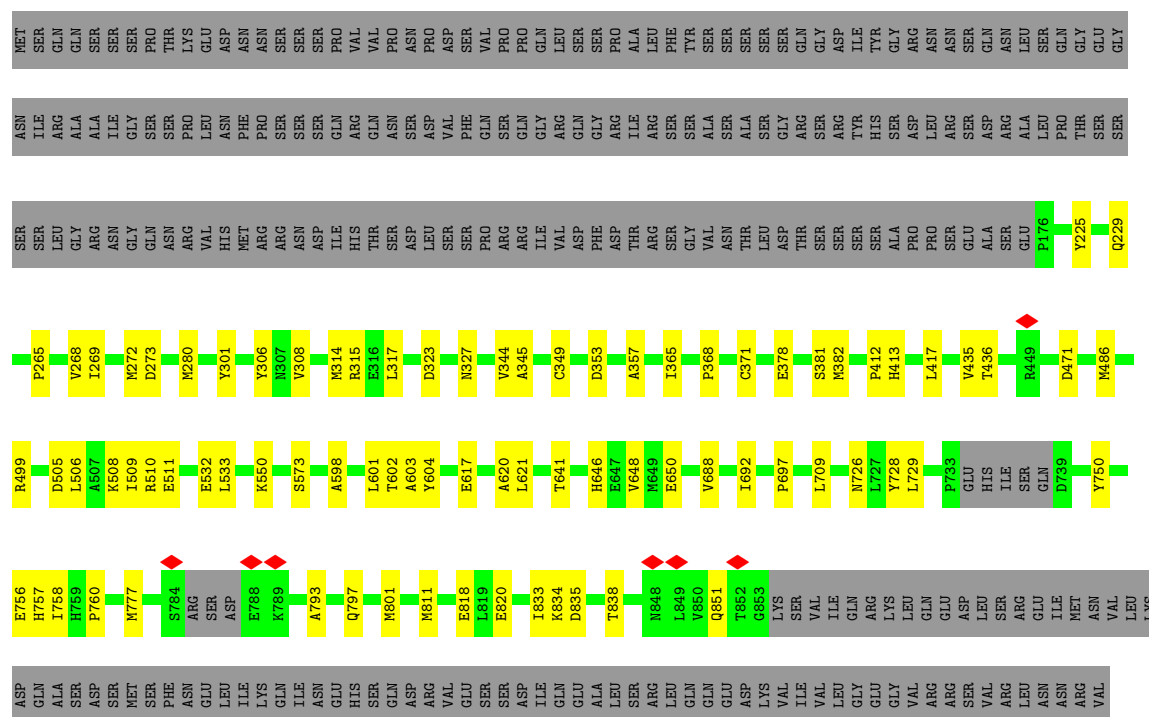
• Molecule 1: DNA replication licensing factor MCM2



• Molecule 1: DNA replication licensing factor MCM2

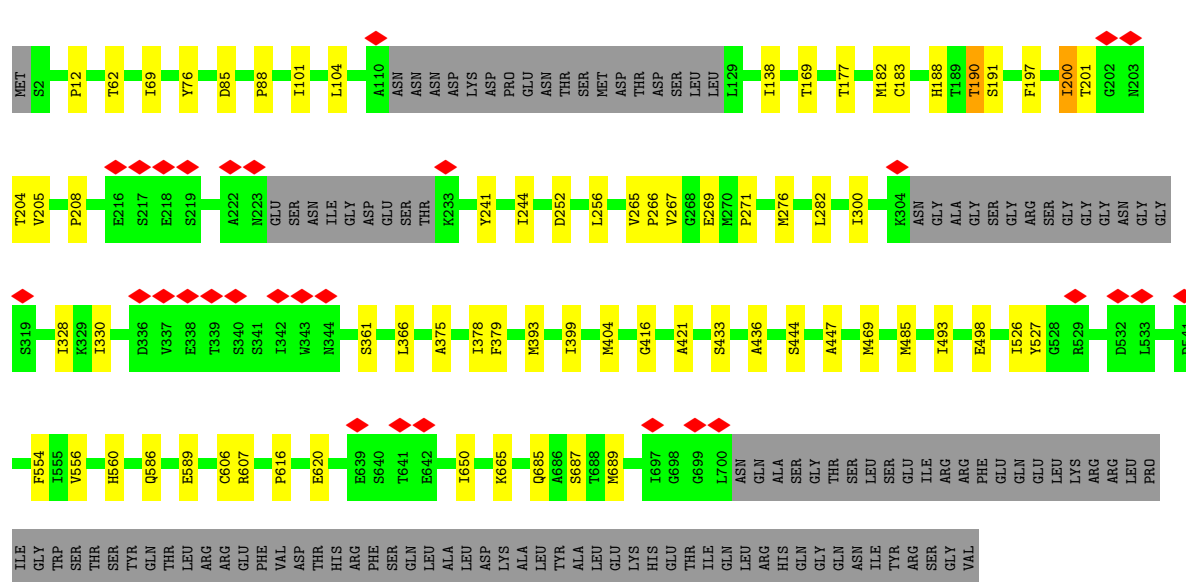


Chain D:  63% 9% 28%



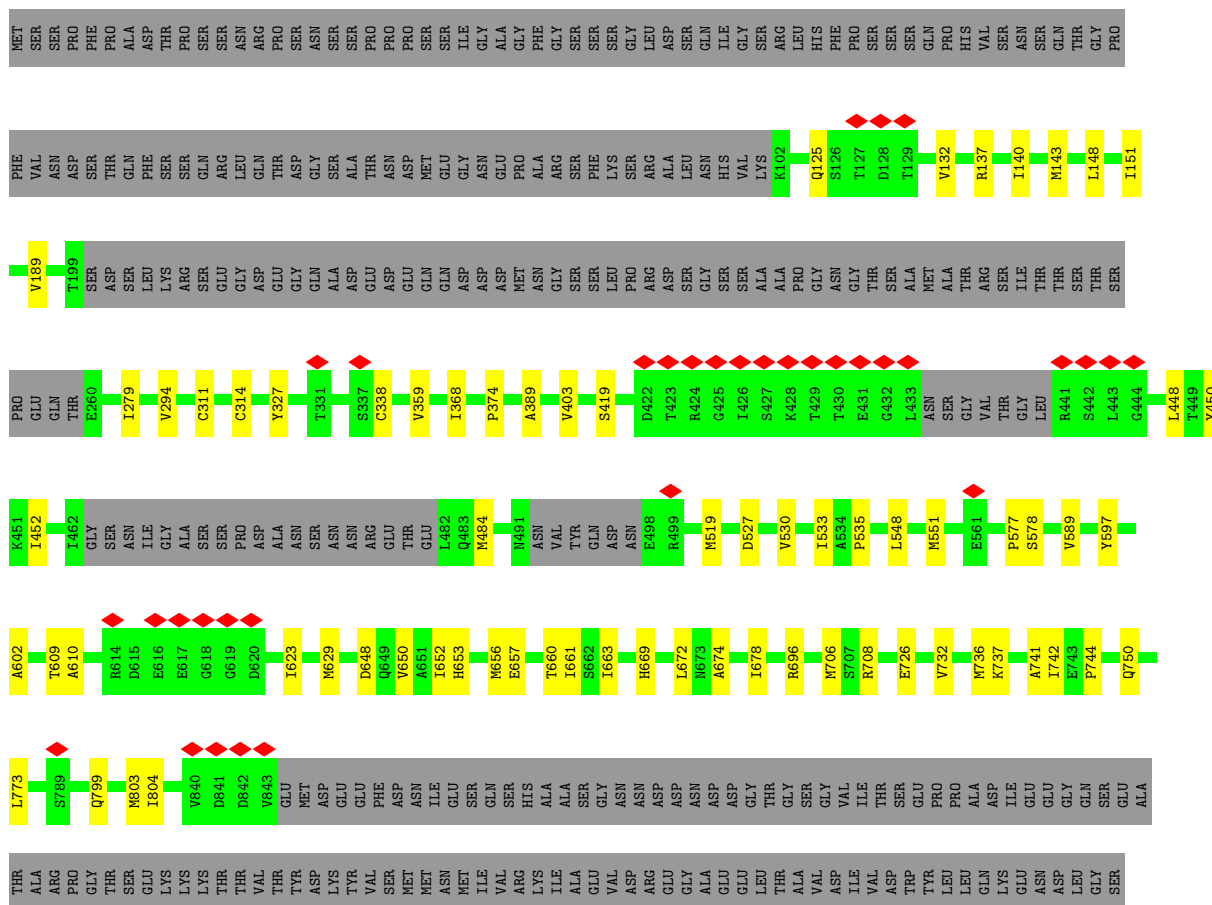
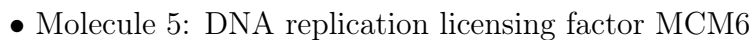
• Molecule 4: Minichromosome maintenance protein 5

Chain 5:  76% 9% 15%



• Molecule 4: Minichromosome maintenance protein 5

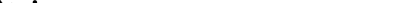
Chain E:  75% 9% 15%





- Molecule 6: DNA replication licensing factor MCM7

- Molecule 7: DNA replication regulator SLD3

Chain X:  98%



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

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	144373	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.894	Depositor
Minimum map value	-0.302	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.031	Depositor
Recommended contour level	0.154	Depositor
Map size (Å)	423.99997, 423.99997, 423.99997	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	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: ADP, ATP, ZN, 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	2	0.12	0/5057	0.31	0/6834
1	B	0.13	0/5057	0.33	0/6834
2	3	0.13	0/5069	0.30	0/6875
2	C	0.14	0/5064	0.31	1/6868 (0.0%)
3	4	0.14	0/5392	0.32	1/7289 (0.0%)
3	D	0.13	0/5400	0.32	0/7300
4	5	0.13	0/5219	0.33	0/7058
4	E	0.14	0/5211	0.33	0/7047
5	6	0.14	0/5223	0.33	0/7046
5	F	0.13	0/5132	0.31	0/6921
6	7	0.14	0/5590	0.31	0/7554
6	G	0.14	0/5550	0.31	0/7496
7	X	0.12	0/103	0.33	0/135
All	All	0.13	0/63067	0.32	2/85257 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
3	4	421	ASP	CB-CA-C	-5.68	110.04	116.63
2	C	280	ASP	CB-CA-C	-5.18	110.19	117.23

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	2	4970	0	5026	40	0
1	B	4970	0	5026	45	0
2	3	4983	0	5046	43	0
2	C	4978	0	5041	24	0
3	4	5316	0	5366	45	0
3	D	5323	0	5373	48	0
4	5	5145	0	5199	44	0
4	E	5137	0	5189	47	0
5	6	5143	0	5167	50	0
5	F	5052	0	5095	30	0
6	7	5505	0	5565	30	0
6	G	5467	0	5531	40	0
7	X	102	0	102	0	0
8	2	31	0	12	0	0
8	4	31	0	12	2	0
8	7	31	0	12	0	0
8	B	31	0	12	0	0
8	D	31	0	12	1	0
8	G	31	0	12	0	0
9	2	1	0	0	0	0
9	3	1	0	0	0	0
9	4	1	0	0	0	0
9	5	1	0	0	0	0
9	7	1	0	0	0	0
9	B	1	0	0	0	0
9	C	1	0	0	0	0
9	D	1	0	0	0	0
9	E	1	0	0	0	0
9	G	1	0	0	0	0
10	2	1	0	0	0	0
10	4	1	0	0	0	0
10	5	1	0	0	0	0
10	6	1	0	0	0	0
10	7	1	0	0	0	0
10	B	1	0	0	0	0
10	D	1	0	0	0	0
10	E	1	0	0	0	0
10	F	1	0	0	0	0
10	G	1	0	0	0	0
11	3	27	0	12	2	0
11	5	27	0	12	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	C	27	0	12	2	0
11	E	27	0	12	0	0
All	All	62405	0	62846	453	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 4.

All (453) 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)
5:6:484:MET:HE3	5:6:484:MET:H	1.45	0.82
3:D:314:MET:HG3	3:D:317:LEU:HD12	1.63	0.81
2:3:384:MET:HE1	2:3:513:ILE:HB	1.66	0.76
5:6:419:SER:HB2	5:6:448:LEU:HD11	1.68	0.75
6:7:167:MET:HE2	4:E:104:LEU:HB3	1.71	0.72
5:6:143:MET:HG3	5:6:148:LEU:HB2	1.73	0.70
3:D:315:ARG:HH21	3:D:413:HIS:HB3	1.58	0.68
6:G:166:LEU:HD12	6:G:167:MET:HG2	1.75	0.68
3:4:767:LYS:HD2	5:6:736:MET:HE1	1.76	0.68
3:4:585:THR:HG21	3:4:628:VAL:HB	1.75	0.68
5:6:314:CYS:SG	5:6:338:CYS:HB3	2.34	0.67
5:6:737:LYS:HB2	5:6:741:ALA:HB2	1.76	0.67
3:4:526:ILE:HD11	3:4:541:LEU:HB2	1.76	0.67
5:6:140:ILE:HD11	5:6:189:VAL:HG22	1.76	0.67
1:B:527:VAL:HG21	4:E:575:ILE:HG23	1.77	0.66
3:D:602:THR:HG22	3:D:603:ALA:H	1.59	0.66
5:6:629:MET:HA	5:6:629:MET:HE3	1.77	0.66
4:E:278:CYS:HB3	4:E:330:ILE:HD12	1.79	0.64
3:D:777:MET:HG2	3:D:793:ALA:HB2	1.80	0.64
3:D:412:PRO:HD2	6:G:557:LEU:HD23	1.80	0.64
2:3:412:SER:HA	11:3:2001:ADP:H5'2	1.80	0.63
3:D:726:ASN:HA	3:D:729:LEU:HD23	1.79	0.63
6:G:257:VAL:HA	6:G:272:GLU:HA	1.78	0.63
1:B:545:PRO:HG3	1:B:651:ASN:HD21	1.64	0.63
1:2:283:TYR:HB2	1:2:286:TYR:HB2	1.80	0.63
5:6:732:VAL:HG12	5:6:736:MET:HE2	1.79	0.62
2:C:647:ILE:HG22	2:C:649:LYS:H	1.64	0.62
1:2:568:GLY:HA3	1:2:612:MET:HB2	1.79	0.62
1:B:795:ARG:HA	1:B:798:ILE:HD12	1.80	0.62
6:G:498:MET:O	6:G:506:MET:HA	1.99	0.62
3:4:601:LEU:HB3	3:4:621:LEU:HD23	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:762:ILE:HB	5:6:736:MET:HB3	1.81	0.62
4:5:200:ILE:HG12	4:5:201:THR:HG23	1.80	0.62
1:B:384:ASN:HB2	1:B:412:ALA:HA	1.83	0.61
5:6:650:VAL:HA	5:6:653:HIS:CD2	2.35	0.61
5:6:663:ILE:O	5:6:669:HIS:HA	1.99	0.61
5:F:796:THR:H	5:F:799:GLN:HG2	1.65	0.61
4:5:685:GLN:HA	4:5:689:MET:HG2	1.83	0.61
3:4:697:PRO:HA	5:6:577:PRO:HB3	1.82	0.61
6:G:537:ILE:O	6:G:541:MET:HG3	2.01	0.60
2:C:457:LEU:HD11	2:C:504:THR:HG21	1.82	0.60
4:E:276:MET:HE3	4:E:330:ILE:HD11	1.83	0.60
3:D:371:CYS:HA	3:D:382:MET:HE2	1.84	0.60
4:5:183:CYS:HB3	4:5:188:HIS:H	1.67	0.59
5:6:143:MET:HE1	5:6:151:ILE:HB	1.83	0.59
5:6:732:VAL:O	5:6:736:MET:HG2	2.02	0.59
6:7:600:MET:HA	6:7:727:LEU:HD23	1.83	0.59
2:3:384:MET:HE3	2:3:405:ILE:HD12	1.83	0.59
5:6:314:CYS:SG	5:6:338:CYS:CB	2.87	0.59
2:C:341:MET:HE2	2:C:341:MET:HA	1.85	0.59
5:6:799:GLN:O	5:6:803:MET:HG3	2.03	0.59
2:3:462:MET:HG2	2:3:470:VAL:HG21	1.85	0.59
1:B:820:PHE:HA	1:B:823:MET:HE3	1.85	0.59
1:B:560:ALA:HB3	1:B:563:ALA:HB2	1.85	0.59
4:5:104:LEU:HD12	6:G:166:LEU:HD11	1.84	0.58
1:B:663:LEU:HD22	1:B:848:ALA:HB1	1.85	0.58
5:F:403:VAL:HG22	5:F:450:TYR:HB3	1.85	0.58
1:2:498:ILE:HD12	1:2:513:THR:HA	1.85	0.58
4:5:393:MET:HA	4:5:393:MET:HE3	1.86	0.57
6:G:513:LEU:HD13	6:G:540:VAL:HG21	1.86	0.57
3:D:306:TYR:HA	3:D:436:THR:HG21	1.85	0.57
6:G:444:VAL:HG12	6:G:446:ASP:H	1.70	0.57
1:2:560:ALA:HB3	1:2:563:ALA:HB2	1.87	0.57
6:7:370:LEU:HD12	4:E:221:MET:HE2	1.87	0.57
3:D:818:GLU:HG3	3:D:820:GLU:H	1.69	0.57
4:E:393:MET:HE2	4:E:666:LEU:HA	1.85	0.57
2:3:409:GLY:HA3	2:3:549:VAL:HG23	1.87	0.56
4:5:12:PRO:HA	6:G:267:TYR:HA	1.87	0.56
4:E:200:ILE:HG13	4:E:277:THR:HG21	1.87	0.56
4:E:265:VAL:HG21	4:E:271:PRO:HB3	1.87	0.56
6:G:375:TYR:HE2	6:G:377:GLU:HG2	1.70	0.56
3:D:797:GLN:O	3:D:801:MET:HG3	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:396:LYS:HB2	5:F:462:ILE:HD11	1.87	0.56
4:5:204:THR:HG23	4:5:205:VAL:HG23	1.88	0.56
4:5:416:GLY:HA3	4:5:556:VAL:HG23	1.88	0.56
4:E:433:SER:HB3	4:E:436:ALA:HB2	1.88	0.56
2:3:731:ASN:HA	2:3:734:ARG:HG2	1.87	0.55
4:5:433:SER:HB3	4:5:436:ALA:HB2	1.87	0.55
6:7:398:GLU:O	6:7:402:MET:HG2	2.06	0.55
1:B:820:PHE:HA	1:B:823:MET:CE	2.37	0.55
6:G:23:ASP:HA	6:G:26:VAL:HG22	1.88	0.55
6:G:584:ILE:HD11	6:G:599:LEU:HD11	1.88	0.55
3:D:601:LEU:HD13	3:D:620:ALA:HB3	1.89	0.55
5:F:706:MET:HG3	5:F:712:PHE:CZ	2.42	0.55
5:6:610:ALA:HB1	5:6:623:ILE:HD11	1.89	0.54
6:7:255:VAL:HG21	6:7:258:ILE:HG12	1.89	0.54
4:E:444:SER:HB2	4:E:447:ALA:HB3	1.90	0.54
2:C:646:GLU:HA	2:C:651:VAL:HA	1.90	0.54
1:2:186:LEU:HD22	1:2:203:VAL:HG13	1.89	0.54
5:F:589:VAL:HG21	5:F:597:TYR:HB2	1.87	0.54
4:5:393:MET:HE1	4:5:606:CYS:HB2	1.89	0.54
6:7:531:GLU:HA	6:7:534:ARG:HB2	1.90	0.54
4:5:282:LEU:HD13	4:5:330:ILE:HG22	1.90	0.54
4:E:361:SER:HA	4:E:366:LEU:HD22	1.88	0.54
5:F:629:MET:N	5:F:629:MET:HE2	2.22	0.54
4:5:101:ILE:HG12	6:G:166:LEU:HD13	1.90	0.54
5:F:777:TYR:CG	5:F:800:LEU:HD12	2.42	0.53
3:4:571:SER:HA	8:4:2001:ATP:H5'2	1.90	0.53
1:2:237:MET:N	1:2:237:MET:HE2	2.23	0.53
4:E:183:CYS:HB3	4:E:188:HIS:H	1.74	0.53
3:D:471:ASP:HA	3:D:499:ARG:HH21	1.72	0.53
2:C:305:GLY:HA2	2:C:310:ASN:HB2	1.90	0.53
3:D:268:VAL:O	3:D:272:MET:HG3	2.08	0.53
3:D:378:GLU:HG2	3:D:381:SER:HB3	1.91	0.53
3:D:368:PRO:HG2	3:D:382:MET:HG3	1.91	0.53
5:F:638:ILE:HD11	5:F:644:MET:HE1	1.91	0.53
6:G:255:VAL:HG21	6:G:258:ILE:HG12	1.91	0.53
2:3:261:MET:HG3	2:3:264:MET:HG2	1.90	0.52
1:B:802:SER:HB3	1:B:853:VAL:HG11	1.91	0.52
2:3:728:VAL:HA	2:3:731:ASN:ND2	2.25	0.52
1:B:527:VAL:HB	1:B:531:HIS:HB3	1.90	0.52
6:G:206:PRO:HB3	6:G:352:THR:HG21	1.90	0.52
4:5:444:SER:HB2	4:5:447:ALA:HB3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:726:ASN:HA	3:4:729:LEU:HD23	1.91	0.52
6:7:724:LYS:HG3	6:7:725:GLU:HG3	1.91	0.52
1:B:780:GLN:O	1:B:783:MET:HB2	2.09	0.52
4:5:379:PHE:H	11:5:2001:ADP:N6	2.08	0.52
5:6:589:VAL:HG21	5:6:597:TYR:HB2	1.92	0.52
2:C:261:MET:HE1	2:C:588:LEU:HD11	1.90	0.52
2:3:236:THR:HG21	6:7:2:SER:HB3	1.92	0.52
3:4:568:GLY:HA3	3:4:708:VAL:HG23	1.91	0.52
4:E:39:ARG:HB3	4:E:42:SER:HA	1.91	0.52
3:4:438:THR:HG23	3:4:462:ASP:HB2	1.92	0.52
4:5:276:MET:HG2	4:5:328:ILE:HB	1.92	0.52
3:4:523:ALA:HA	3:4:526:ILE:HD12	1.91	0.52
4:5:266:PRO:HG2	4:5:269:GLU:HB2	1.91	0.51
5:F:736:MET:HG3	5:F:737:LYS:HG3	1.92	0.51
3:D:344:VAL:HG12	3:D:357:ALA:HB1	1.90	0.51
3:D:345:ALA:HB2	3:D:365:ILE:HD13	1.90	0.51
3:4:268:VAL:O	3:4:272:MET:HG3	2.11	0.51
3:4:798:LEU:HA	3:4:801:MET:HG3	1.92	0.51
5:6:125:GLN:HA	5:6:132:VAL:HA	1.93	0.51
5:6:696:ARG:O	5:6:696:ARG:HD3	2.11	0.51
5:F:150:THR:HG22	5:F:264:GLN:HB3	1.92	0.51
2:C:700:ARG:O	2:C:704:THR:HG23	2.11	0.51
5:6:137:ARG:O	5:6:140:ILE:HG22	2.11	0.51
2:3:676:ILE:HG12	6:7:617:THR:HB	1.92	0.50
3:D:550:LYS:HE3	5:F:735:HIS:HD1	1.75	0.50
5:6:403:VAL:HG13	5:6:450:TYR:HB3	1.93	0.50
5:F:333:CYS:SG	5:F:338:CYS:HB3	2.51	0.50
5:6:653:HIS:HA	5:6:656:MET:HB2	1.93	0.50
3:D:604:TYR:CE1	3:D:617:GLU:HB3	2.46	0.50
6:7:64:MET:HE3	6:7:64:MET:HA	1.94	0.50
1:B:815:ARG:O	1:B:818:GLU:HG2	2.11	0.50
6:7:396:ASP:O	6:7:399:GLU:HG3	2.12	0.50
11:3:2001:ADP:O2A	4:5:498:GLU:HG2	2.12	0.49
3:D:417:LEU:HD21	3:D:435:VAL:HG11	1.94	0.49
1:B:582:LYS:HE2	1:B:587:LYS:HB3	1.92	0.49
4:E:663:LEU:HA	4:E:666:LEU:HD12	1.93	0.49
3:4:509:ILE:HD11	3:4:749:MET:HG3	1.93	0.49
1:2:235:GLY:HA3	1:2:283:TYR:CE2	2.48	0.49
6:7:230:ILE:HD12	6:7:239:ILE:HD12	1.94	0.49
6:G:414:LEU:HB3	6:G:433:LEU:HD11	1.93	0.49
2:3:442:LEU:HD12	2:3:462:MET:CE	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:802:SER:HB3	1:2:853:VAL:HG11	1.95	0.49
1:B:364:CYS:HB2	1:B:373:PHE:CE1	2.47	0.49
3:4:191:THR:HG23	3:4:275:THR:HG22	1.95	0.49
5:6:519:MET:HE1	5:6:750:GLN:HB2	1.95	0.49
1:2:598:LEU:HD21	4:5:267:VAL:HA	1.94	0.48
5:6:629:MET:HE1	5:6:674:ALA:H	1.78	0.48
1:B:774:ILE:HD11	1:B:825:LEU:HG	1.95	0.48
2:C:330:HIS:CG	2:C:338:ALA:HB2	2.48	0.48
3:D:265:PRO:O	3:D:269:ILE:HB	2.14	0.48
1:2:438:LEU:HD12	5:6:327:TYR:HB2	1.96	0.48
3:D:486:MET:N	3:D:486:MET:HE2	2.29	0.48
2:3:43:ARG:HD3	2:3:136:MET:HE3	1.95	0.48
3:D:323:ASP:HB2	6:G:303:ARG:HH21	1.78	0.48
3:D:697:PRO:HA	5:F:577:PRO:HB3	1.95	0.48
2:C:478:MET:HB2	2:C:483:ARG:HE	1.79	0.48
6:G:728:TYR:C	6:G:728:TYR:CD1	2.92	0.48
3:4:233:MET:HE1	3:4:241:LEU:HB2	1.96	0.48
5:F:581:LYS:HB3	5:F:715:ILE:HD11	1.95	0.48
3:4:696:PRO:N	3:4:697:PRO:HD2	2.28	0.47
4:E:169:THR:HG22	4:E:256:LEU:HD22	1.96	0.47
6:G:26:VAL:HG23	6:G:27:THR:HG23	1.96	0.47
1:B:819:SER:O	1:B:823:MET:HE2	2.14	0.47
2:3:669:PRO:HG2	2:3:710:THR:HG23	1.96	0.47
3:4:306:TYR:HA	3:4:436:THR:HG21	1.97	0.47
3:D:601:LEU:HD12	3:D:621:LEU:HG	1.96	0.47
3:D:621:LEU:HD13	3:D:648:VAL:HG21	1.94	0.47
1:2:335:LYS:HE2	1:2:383:ARG:HB3	1.95	0.47
1:2:534:ARG:HG2	1:2:536:ASP:H	1.78	0.47
2:3:223:THR:HG21	4:5:244:ILE:HA	1.97	0.47
5:6:368:ILE:HD11	5:6:374:PRO:HB3	1.96	0.47
11:C:2001:ADP:H5'1	4:E:651:ARG:HH11	1.79	0.47
4:5:469:MET:HE3	4:5:469:MET:HB3	1.82	0.47
5:F:516:LEU:HD21	5:F:757:TYR:CG	2.49	0.47
3:4:654:ILE:HG22	3:4:656:ILE:HG12	1.97	0.47
6:7:517:ASP:HA	6:7:561:THR:HG22	1.97	0.47
1:B:334:LEU:HD23	1:B:380:THR:HG21	1.97	0.47
4:E:201:THR:O	4:E:201:THR:HG22	2.15	0.47
2:C:417:GLN:NE2	4:E:404:MET:HE1	2.29	0.47
5:F:648:ASP:O	5:F:652:ILE:HG22	2.15	0.47
5:F:756:LYS:O	5:F:760:THR:HG23	2.15	0.47
3:4:650:GLU:HB3	3:4:701:ARG:HH11	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:417:GLN:HG3	11:C:2001:ADP:H3'	1.97	0.46
3:D:506:LEU:O	3:D:510:ARG:HG2	2.15	0.46
6:G:375:TYR:CE2	6:G:377:GLU:HG2	2.49	0.46
5:6:661:ILE:HB	5:6:672:LEU:HB2	1.97	0.46
5:6:706:MET:HE2	5:6:706:MET:HB3	1.78	0.46
2:3:584:GLU:HG2	4:5:399:ILE:HD11	1.95	0.46
1:2:534:ARG:O	1:2:815:ARG:HD3	2.16	0.46
6:7:484:THR:HG22	6:7:524:ASP:HB3	1.98	0.46
4:E:183:CYS:CB	4:E:186:CYS:SG	3.03	0.46
2:3:295:VAL:HB	2:3:325:THR:HB	1.97	0.46
4:5:526:ILE:HG13	4:5:527:TYR:CD1	2.50	0.46
2:3:216:ASP:OD1	2:3:219:THR:HG23	2.16	0.46
4:E:656:ILE:HA	4:E:659:ILE:HD12	1.97	0.46
3:4:573:SER:HB2	8:4:2001:ATP:C8	2.51	0.46
4:5:182:MET:HE3	4:5:182:MET:HB2	1.76	0.46
4:5:485:MET:SD	4:5:493:ILE:HG13	2.56	0.46
4:E:404:MET:HE3	4:E:404:MET:HB3	1.76	0.46
1:2:474:PHE:CZ	1:2:561:HIS:HA	2.51	0.46
2:3:192:VAL:HG13	2:3:283:VAL:HG11	1.97	0.46
2:3:341:MET:HE2	2:3:341:MET:HA	1.97	0.46
6:G:722:VAL:HA	6:G:726:SER:HB3	1.98	0.46
1:2:276:MET:HE2	1:2:293:ILE:HB	1.98	0.46
2:3:386:MET:HE1	2:3:660:VAL:HA	1.96	0.46
1:2:267:MET:HE3	1:2:267:MET:HB3	1.83	0.45
6:7:157:ARG:HG3	6:7:185:VAL:HG22	1.98	0.45
6:7:179:ASP:O	6:7:182:ARG:HG3	2.16	0.45
1:2:194:TYR:O	1:2:198:ILE:HG12	2.16	0.45
3:4:506:LEU:HD21	3:4:510:ARG:HE	1.80	0.45
5:6:311:CYS:HB3	5:6:314:CYS:HB2	1.97	0.45
5:6:742:ILE:HG22	5:6:744:PRO:HD3	1.98	0.45
1:B:763:LEU:O	1:B:767:ILE:HG12	2.16	0.45
1:B:383:ARG:HB2	1:B:412:ALA:HB2	1.97	0.45
2:C:121:PHE:C	2:C:124:PRO:HD2	2.42	0.45
1:2:233:THR:O	1:2:237:MET:HG2	2.16	0.45
1:2:769:TYR:CE2	1:2:773:LYS:HG3	2.52	0.45
2:3:585:ARG:HE	2:3:585:ARG:HB3	1.67	0.45
3:D:315:ARG:HE	3:D:413:HIS:CG	2.34	0.45
3:4:519:TYR:CD1	3:4:811:MET:HE1	2.51	0.45
1:B:324:VAL:HG13	1:B:388:VAL:HG13	1.98	0.45
3:D:505:ASP:O	3:D:509:ILE:HG12	2.16	0.45
3:D:508:LYS:O	3:D:511:GLU:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:728:TYR:HB3	6:G:652:MET:SD	2.56	0.45
4:E:25:THR:O	4:E:29:LYS:HG2	2.16	0.45
4:5:208:PRO:HG2	4:5:241:TYR:CD2	2.51	0.45
6:7:464:VAL:HG23	6:7:466:LYS:HG3	1.99	0.45
6:7:707:MET:HE3	6:7:708:VAL:H	1.81	0.45
4:E:208:PRO:HG2	4:E:241:TYR:CD2	2.52	0.45
4:E:373:SER:HB3	4:E:599:MET:HE1	1.97	0.45
1:2:501:MET:HE3	1:2:501:MET:HA	1.98	0.45
2:3:724:VAL:HA	2:3:727:LYS:HG2	1.99	0.45
3:4:656:ILE:HD13	5:6:602:ALA:HB1	1.98	0.45
3:4:345:ALA:HB2	3:4:365:ILE:HD13	1.98	0.45
3:4:519:TYR:OH	3:4:538:LYS:HB3	2.17	0.45
3:4:812:LYS:HE3	3:4:814:LYS:HE2	1.97	0.45
6:G:605:SER:HB3	6:G:608:ASP:OD1	2.17	0.45
1:2:761:GLU:HA	1:2:764:MET:HE2	1.99	0.45
2:3:367:LEU:HG	2:3:421:PHE:CE2	2.52	0.45
2:3:680:VAL:HG22	6:7:613:ALA:HB1	1.99	0.45
5:6:279:ILE:HG21	5:6:452:ILE:HG21	1.98	0.45
1:B:612:MET:HE1	1:B:620:ILE:HG13	1.98	0.45
3:D:532:GLU:HB3	3:D:533:LEU:H	1.55	0.45
6:G:228:ARG:NH2	6:G:326:HIS:HB3	2.32	0.45
4:E:454:GLN:HE22	4:E:465:GLU:HB2	1.82	0.44
5:F:547:ILE:HG22	5:F:551:MET:HE2	1.98	0.44
1:2:324:VAL:HG13	1:2:388:VAL:HG13	2.00	0.44
1:2:520:PHE:CE1	1:2:767:ILE:HG12	2.52	0.44
2:3:39:ARG:HG3	2:3:136:MET:SD	2.57	0.44
5:6:535:PRO:HB2	5:6:742:ILE:HG23	1.99	0.44
6:G:364:LYS:HD2	6:G:367:LYS:HD3	1.99	0.44
6:G:459:MET:HE1	6:G:569:PRO:N	2.33	0.44
6:7:323:PRO:HG2	6:7:326:HIS:CG	2.52	0.44
1:B:687:VAL:HG21	5:F:785:ALA:HB2	1.99	0.44
4:5:265:VAL:HG21	4:5:271:PRO:HB3	1.99	0.44
4:5:607:ARG:HA	4:5:665:LYS:HE2	1.99	0.44
5:F:189:VAL:HG13	5:F:197:LEU:HD11	1.98	0.44
3:4:268:VAL:HG12	3:4:272:MET:HE3	1.99	0.44
3:D:349:CYS:HB3	3:D:353:ASP:N	2.33	0.44
3:D:835:ASP:HA	3:D:838:THR:HG22	1.99	0.44
4:E:436:ALA:HA	4:E:476:VAL:O	2.18	0.44
5:F:194:PRO:HA	5:F:197:LEU:HD13	1.99	0.44
4:E:62:THR:HA	4:E:138:ILE:O	2.18	0.44
4:E:618:ALA:HB1	4:E:677:VAL:HG21	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:692:ILE:HG22	3:4:694:LEU:HB2	1.98	0.44
3:D:688:VAL:O	3:D:692:ILE:HG12	2.18	0.44
6:G:88:TYR:O	6:G:91:GLU:HG3	2.17	0.44
2:3:442:LEU:HD12	2:3:462:MET:HE2	1.99	0.44
4:5:485:MET:HE2	4:5:485:MET:HB2	1.91	0.44
5:6:656:MET:SD	5:6:678:ILE:HD12	2.58	0.44
2:3:261:MET:HE2	2:3:291:ARG:HG3	1.99	0.44
4:5:379:PHE:H	11:5:2001:ADP:HN62	1.64	0.44
6:G:621:MET:HE2	6:G:621:MET:HB2	1.81	0.44
6:G:637:LYS:O	6:G:640:GLU:HG2	2.17	0.44
1:2:337:VAL:HA	1:2:380:THR:HG23	1.99	0.43
4:5:62:THR:HA	4:5:138:ILE:O	2.17	0.43
4:5:169:THR:HG22	4:5:256:LEU:HD22	2.00	0.43
1:B:552:ILE:O	1:B:556:VAL:HG23	2.18	0.43
3:4:405:PHE:C	3:4:405:PHE:CD2	2.96	0.43
5:6:656:MET:HE3	5:6:656:MET:HB3	1.92	0.43
6:7:193:PRO:HD2	6:7:196:LEU:HD12	2.00	0.43
1:2:271:PHE:CD1	1:2:295:VAL:HG21	2.53	0.43
1:2:795:ARG:HA	1:2:798:ILE:HD12	2.00	0.43
4:E:554:PHE:CE1	4:E:687:SER:HB3	2.53	0.43
4:E:685:GLN:HA	4:E:689:MET:HB2	2.00	0.43
5:6:294:VAL:HG21	5:6:389:ALA:HB1	2.00	0.43
1:B:274:VAL:O	1:B:277:GLU:HG3	2.19	0.43
2:3:487:HIS:CE1	2:3:539:LEU:HB2	2.53	0.43
1:B:342:LEU:HD12	1:B:372:PRO:HB2	2.01	0.43
1:2:756:SER:HB2	1:2:757:PRO:HD3	2.00	0.43
3:4:604:TYR:CE1	3:4:617:GLU:HB3	2.53	0.43
4:5:69:ILE:HG12	4:5:76:TYR:CD2	2.53	0.43
6:7:206:PRO:HG3	6:7:352:THR:OG1	2.19	0.43
2:C:351:ASN:O	2:C:355:LYS:HG2	2.19	0.43
4:E:74:ASP:O	4:E:77:LYS:HG2	2.19	0.43
2:3:121:PHE:C	2:3:124:PRO:HD2	2.44	0.43
5:6:657:GLU:HG2	5:6:708:ARG:CZ	2.48	0.43
4:E:400:LEU:HD12	4:E:404:MET:HB3	2.01	0.43
2:3:287:LYS:HG2	2:3:290:ASP:OD1	2.19	0.43
6:7:621:MET:HG2	6:7:622:HIS:CD2	2.53	0.43
2:C:577:LEU:HB2	2:C:580:GLU:HB2	2.01	0.43
1:2:802:SER:HB2	1:2:849:GLN:OE1	2.19	0.43
4:E:276:MET:HG2	4:E:328:ILE:HB	2.00	0.43
2:3:41:SER:O	2:3:45:ILE:HG12	2.19	0.42
3:4:435:VAL:HG13	3:4:463:VAL:HG13	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:300:PHE:CE1	1:B:317:LEU:HD23	2.54	0.42
1:B:662:PRO:HG2	1:B:665:GLN:HG2	2.01	0.42
3:D:758:ILE:HG22	3:D:760:PRO:HD3	2.01	0.42
3:4:776:GLY:O	3:4:780:MET:HG2	2.19	0.42
5:6:696:ARG:HD3	5:6:696:ARG:C	2.44	0.42
1:B:501:MET:HG2	1:B:555:TYR:HE2	1.83	0.42
3:D:709:LEU:HD23	3:D:834:LYS:HE3	2.01	0.42
5:F:119:LEU:HD13	5:F:136:TYR:HB3	2.01	0.42
2:3:697:ILE:HG23	2:3:701:THR:HG21	2.01	0.42
2:C:216:ASP:OD1	2:C:219:THR:HG23	2.18	0.42
2:C:487:HIS:CE1	2:C:539:LEU:HB2	2.54	0.42
4:E:161:ARG:HG3	4:E:295:VAL:HG22	2.00	0.42
6:G:497:VAL:HB	6:G:553:ILE:HD11	2.01	0.42
6:G:643:ALA:O	6:G:647:THR:HG23	2.19	0.42
2:3:544:ASP:HB3	2:3:704:THR:HG23	2.00	0.42
5:6:648:ASP:O	5:6:652:ILE:HG23	2.19	0.42
1:B:211:LEU:HD13	1:B:271:PHE:CD1	2.55	0.42
2:C:293:ASN:HB2	2:C:329:LEU:HD11	2.02	0.42
3:D:225:TYR:O	3:D:229:GLN:HG2	2.19	0.42
4:E:85:ASP:C	4:E:88:PRO:HD2	2.44	0.42
3:4:795:THR:HG22	5:6:578:SER:OG	2.19	0.42
1:B:296:ARG:HH21	1:B:413:ASP:HB3	1.85	0.42
2:C:308:GLN:HG3	4:E:209:ARG:NH2	2.34	0.42
2:3:330:HIS:CD2	2:3:338:ALA:HB2	2.54	0.42
4:E:415:LEU:HA	4:E:523:ALA:O	2.19	0.42
6:G:83:ASP:OD1	6:G:207:LEU:HD12	2.19	0.42
1:2:663:LEU:HD12	1:2:663:LEU:O	2.19	0.42
2:3:123:PRO:HB2	2:3:124:PRO:HD3	2.01	0.42
2:3:444:ALA:HB3	2:3:497:ILE:HD11	2.01	0.42
4:5:177:THR:HG22	4:5:197:PHE:CZ	2.55	0.42
3:D:833:ILE:HD12	3:D:833:ILE:HA	1.89	0.42
2:3:97:ILE:HD13	2:3:156:SER:HB2	2.02	0.42
2:3:363:LEU:HD22	2:3:656:LEU:HD13	2.02	0.42
3:4:436:THR:HG23	3:4:465:HIS:HB3	2.00	0.42
4:5:586:GLN:HA	4:5:589:GLU:OE1	2.19	0.42
1:B:325:THR:HG22	5:F:669:HIS:HB2	2.02	0.42
1:2:861:PHE:O	1:2:865:THR:HG23	2.20	0.42
1:B:551:GLN:O	1:B:554:LYS:HG3	2.20	0.42
2:C:584:GLU:HB3	4:E:399:ILE:HD11	2.00	0.42
5:6:484:MET:H	5:6:484:MET:CE	2.22	0.42
3:D:280:MET:HG3	3:D:301:TYR:CZ	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:402:ASP:OD1	4:E:404:MET:HB2	2.20	0.42
6:G:183:GLU:O	6:G:186:GLU:HG2	2.18	0.42
6:G:541:MET:HE2	6:G:593:ARG:HB3	2.00	0.42
3:4:509:ILE:HG23	3:4:750:TYR:CD2	2.55	0.41
5:6:533:ILE:HD12	5:6:548:LEU:HB2	2.02	0.41
3:D:598:ALA:HA	3:D:641:THR:HG23	2.01	0.41
6:G:597:LEU:HB3	6:G:724:LYS:HE2	2.03	0.41
2:3:189:THR:HG21	2:3:288:PRO:HD3	2.01	0.41
3:4:845:ILE:HG22	3:4:847:MET:HE3	2.02	0.41
3:D:834:LYS:HD3	3:D:851:GLN:OE1	2.20	0.41
3:4:756:GLU:HB3	3:4:757:HIS:ND1	2.35	0.41
4:5:375:ALA:HB1	4:5:378:ILE:HG12	2.02	0.41
1:B:189:VAL:HG12	1:B:197:TRP:CD1	2.56	0.41
4:E:617:GLN:HG2	4:E:618:ALA:N	2.35	0.41
5:F:462:ILE:HD12	5:F:462:ILE:H	1.85	0.41
5:F:829:ASP:O	5:F:833:GLN:HG2	2.20	0.41
4:5:421:ALA:HA	11:5:2001:ADP:H5'2	2.03	0.41
5:6:660:THR:HA	5:6:672:LEU:O	2.20	0.41
4:5:190:THR:HG22	4:5:191:SER:H	1.86	0.41
1:B:208:ALA:O	1:B:212:LYS:HG3	2.21	0.41
1:B:238:ASN:HB3	1:B:290:HIS:NE2	2.35	0.41
1:B:760:GLN:O	1:B:764:MET:HG2	2.21	0.41
2:C:116:VAL:HG13	2:C:178:LYS:HE3	2.02	0.41
4:E:599:MET:O	4:E:603:ILE:HG12	2.21	0.41
2:3:440:VAL:HB	2:3:445:ALA:HB2	2.03	0.41
5:6:551:MET:HE3	5:6:551:MET:HB2	1.85	0.41
5:6:609:THR:HB	5:6:661:ILE:HD13	2.02	0.41
6:7:228:ARG:NH2	6:7:326:HIS:HB3	2.36	0.41
1:B:271:PHE:HD2	1:B:295:VAL:HG11	1.86	0.41
1:B:335:LYS:HG3	1:B:383:ARG:HH11	1.85	0.41
3:D:646:HIS:O	3:D:650:GLU:HG2	2.21	0.41
3:D:756:GLU:HG3	3:D:757:HIS:CD2	2.56	0.41
1:2:332:PRO:HG3	4:5:300:ILE:HD12	2.02	0.41
6:7:154:LEU:HD21	6:7:191:LEU:HD11	2.02	0.41
4:E:330:ILE:HD13	4:E:333:ILE:HD11	2.02	0.41
6:G:618:TYR:CG	6:G:626:PRO:HB3	2.56	0.41
3:4:523:ALA:O	3:4:537:LYS:HD3	2.21	0.41
4:5:650:ILE:H	4:5:650:ILE:HD12	1.86	0.41
6:7:61:PRO:HB2	6:7:64:MET:HB2	2.03	0.41
2:C:43:ARG:HD2	2:C:136:MET:HE3	2.02	0.41
3:D:550:LYS:HG2	5:F:738:ARG:NH2	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:117:GLN:O	5:F:121:ASP:HB3	2.21	0.41
1:2:537:ILE:HD11	1:2:815:ARG:HB3	2.03	0.41
1:2:662:PRO:HG2	1:2:665:GLN:HG2	2.03	0.41
2:3:678:VAL:HG21	2:3:723:LYS:HG3	2.02	0.41
3:4:226:TYR:HA	3:4:229:GLN:HB2	2.03	0.41
3:4:527:ALA:HB3	3:4:537:LYS:HE2	2.03	0.41
3:4:650:GLU:HB3	3:4:701:ARG:NH1	2.35	0.41
4:5:85:ASP:C	4:5:88:PRO:HD2	2.46	0.41
4:5:404:MET:HE3	4:5:404:MET:HB2	1.91	0.41
6:7:428:VAL:O	6:7:432:LEU:HG	2.20	0.41
1:B:707:HIS:HA	5:F:557:LYS:HG2	2.01	0.41
2:C:267:ALA:HB3	4:E:471:LEU:HD23	2.03	0.41
3:D:509:ILE:HD12	3:D:750:TYR:HD2	1.86	0.41
4:E:412:VAL:HG13	4:E:552:MET:HB2	2.03	0.41
5:F:313:MET:HE3	5:F:340:ASN:OD1	2.21	0.41
2:3:333:SER:HA	2:3:429:ALA:O	2.21	0.41
4:5:361:SER:HA	4:5:366:LEU:HD22	2.02	0.41
2:C:697:ILE:HG23	2:C:701:THR:HG21	2.03	0.41
4:E:565:ASP:HA	4:E:568:ILE:HG22	2.03	0.41
5:6:773:LEU:HD21	5:6:804:ILE:HG12	2.03	0.40
1:B:559:THR:HA	1:B:764:MET:HE1	2.02	0.40
3:D:573:SER:HB3	8:D:2001:ATP:C8	2.56	0.40
6:G:719:LEU:HA	6:G:722:VAL:HG12	2.03	0.40
1:2:501:MET:HE3	1:2:555:TYR:HE2	1.85	0.40
1:2:527:VAL:CG2	1:2:531:HIS:HB3	2.52	0.40
1:2:774:ILE:HG22	1:2:776:PRO:HD3	2.03	0.40
2:3:490:MET:HE2	2:3:542:ARG:HB3	2.03	0.40
3:4:370:ARG:NH2	3:4:379:PRO:HD3	2.35	0.40
1:B:210:GLU:HB3	1:B:256:LEU:HD11	2.03	0.40
2:C:97:ILE:HD13	2:C:156:SER:HB2	2.03	0.40
3:D:308:VAL:HG22	3:D:327:ASN:HB2	2.02	0.40
5:F:107:THR:HA	5:F:110:LYS:HG2	2.04	0.40
6:G:157:ARG:HG3	6:G:185:VAL:HG12	2.03	0.40
1:2:246:TYR:CD2	1:2:301:PRO:HD3	2.56	0.40
4:5:554:PHE:CZ	4:5:687:SER:HB3	2.56	0.40
1:B:271:PHE:CD2	1:B:295:VAL:HG11	2.56	0.40
1:B:344:CYS:HB3	1:B:367:CYS:SG	2.60	0.40
1:B:501:MET:HE1	1:B:516:ALA:N	2.37	0.40
6:G:293:GLN:HG2	6:G:294:THR:N	2.36	0.40
6:G:652:MET:HB3	6:G:708:VAL:HB	2.04	0.40
1:2:671:GLU:N	1:2:672:PRO:HD2	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:265:PRO:HB3	3:4:325:LEU:HG	2.03	0.40
4:5:616:PRO:O	4:5:620:GLU:HG2	2.21	0.40
5:6:527:ASP:HA	5:6:530:VAL:HG22	2.02	0.40
6:7:228:ARG:HG2	6:7:317:GLU:OE2	2.21	0.40
6:7:414:LEU:HD22	6:7:638:MET:HG3	2.04	0.40
6:7:477:SER:HB2	6:7:520:ILE:HD12	2.02	0.40
4:E:569:ALA:O	4:E:573:ILE:HG12	2.21	0.40
1:2:326:ARG:HH22	5:6:669:HIS:N	2.18	0.40
1:2:856:GLN:O	1:2:859:ARG:HG2	2.21	0.40
3:4:225:TYR:O	3:4:228:LYS:HG2	2.22	0.40
1:B:266:GLU:HG2	1:B:267:MET:N	2.36	0.40
4:E:82:GLU:HG3	4:E:85:ASP:OD1	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	2	622/868 (72%)	613 (99%)	9 (1%)	0	100	100
1	B	622/868 (72%)	608 (98%)	14 (2%)	0	100	100
2	3	626/971 (64%)	614 (98%)	12 (2%)	0	100	100
2	C	626/971 (64%)	619 (99%)	7 (1%)	0	100	100
3	4	663/933 (71%)	649 (98%)	14 (2%)	0	100	100
3	D	664/933 (71%)	653 (98%)	11 (2%)	0	100	100
4	5	650/775 (84%)	640 (98%)	10 (2%)	0	100	100
4	E	649/775 (84%)	642 (99%)	7 (1%)	0	100	100
5	6	640/1017 (63%)	627 (98%)	13 (2%)	0	100	100
5	F	628/1017 (62%)	615 (98%)	13 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	7	693/845 (82%)	685 (99%)	8 (1%)	0	100	100
6	G	686/845 (81%)	679 (99%)	7 (1%)	0	100	100
7	X	10/668 (2%)	10 (100%)	0	0	100	100
All	All	7779/11486 (68%)	7654 (98%)	125 (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	2	552/770 (72%)	550 (100%)	2 (0%)	84	84
1	B	552/770 (72%)	548 (99%)	4 (1%)	76	80
2	3	550/835 (66%)	550 (100%)	0	100	100
2	C	549/835 (66%)	546 (100%)	3 (0%)	81	82
3	4	605/848 (71%)	601 (99%)	4 (1%)	76	80
3	D	606/848 (72%)	604 (100%)	2 (0%)	86	85
4	5	588/688 (86%)	584 (99%)	4 (1%)	76	80
4	E	587/688 (85%)	584 (100%)	3 (0%)	81	82
5	6	568/886 (64%)	566 (100%)	2 (0%)	84	84
5	F	559/886 (63%)	556 (100%)	3 (0%)	81	82
6	7	618/753 (82%)	614 (99%)	4 (1%)	78	81
6	G	613/753 (81%)	611 (100%)	2 (0%)	86	85
7	X	12/628 (2%)	12 (100%)	0	100	100
All	All	6959/10188 (68%)	6926 (100%)	33 (0%)	78	82

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	2	193	SER

Continued on next page...

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Mol	Chain	Res	Type
1	2	426	VAL
3	4	436	THR
3	4	438	THR
3	4	674	SER
3	4	749	MET
4	5	190	THR
4	5	200	ILE
4	5	252	ASP
4	5	560	HIS
5	6	359	VAL
5	6	726	GLU
6	7	66	MET
6	7	141	VAL
6	7	257	VAL
6	7	675	MET
1	B	426	VAL
1	B	608	GLU
1	B	683	VAL
1	B	781	MET
2	C	46	GLN
2	C	220	THR
2	C	533	ILE
3	D	273	ASP
3	D	811	MET
4	E	65	MET
4	E	325	THR
4	E	599	MET
5	F	119	LEU
5	F	379	VAL
5	F	621	TYR
6	G	256	GLU
6	G	258	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (49) such sidechains are listed below:

Mol	Chain	Res	Type
1	2	366	ASN
2	3	374	HIS
2	3	587	ASN
2	3	673	GLN
3	4	447	ASN
3	4	450	GLN

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Mol	Chain	Res	Type
3	4	582	HIS
3	4	685	ASN
3	4	797	GLN
4	5	130	ASN
4	5	195	ASN
4	5	302	ASN
4	5	454	GLN
4	5	586	GLN
4	5	632	GLN
5	6	198	ASN
5	6	274	HIS
5	6	335	ASN
5	6	673	ASN
6	7	89	GLN
6	7	90	ASN
6	7	98	GLN
6	7	291	GLN
6	7	412	ASN
6	7	623	ASN
1	B	710	ASN
1	B	768	HIS
2	C	417	GLN
2	C	531	GLN
2	C	670	GLN
2	C	673	GLN
2	C	691	ASN
3	D	242	ASN
3	D	350	ASN
3	D	500	GLN
3	D	582	HIS
3	D	651	GLN
3	D	666	ASN
3	D	676	ASN
4	E	142	ASN
4	E	245	HIS
4	E	302	ASN
4	E	499	GLN
6	G	90	ASN
6	G	332	ASN
6	G	412	ASN
6	G	558	ASN
6	G	568	ASN

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Mol	Chain	Res	Type
6	G	657	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 30 ligands modelled in this entry, 20 are monoatomic - leaving 10 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	$\# Z > 2$
8	ATP	G	2001	9	29,33,33	0.31	0	44,52,52	0.51	0
8	ATP	2	2001	9	29,33,33	0.29	0	44,52,52	0.49	1 (2%)
8	ATP	B	2001	9	29,33,33	0.29	0	44,52,52	0.48	1 (2%)
8	ATP	7	2001	9	29,33,33	0.30	0	44,52,52	0.50	1 (2%)
8	ATP	D	2001	9	29,33,33	0.31	0	44,52,52	0.50	1 (2%)
11	ADP	5	2001	9	27,29,29	1.35	4 (14%)	42,45,45	2.01	9 (21%)
11	ADP	E	2001	9	27,29,29	1.34	4 (14%)	42,45,45	1.95	10 (23%)
11	ADP	3	2001	9	27,29,29	1.35	4 (14%)	42,45,45	1.96	10 (23%)
11	ADP	C	2001	9	27,29,29	1.35	4 (14%)	42,45,45	1.97	10 (23%)
8	ATP	4	2001	9	29,33,33	0.29	0	44,52,52	0.47	0

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
8	ATP	G	2001	9	-	3/22/38/38	0/3/3/3
8	ATP	2	2001	9	-	5/22/38/38	0/3/3/3
8	ATP	B	2001	9	-	4/22/38/38	0/3/3/3
8	ATP	7	2001	9	-	1/22/38/38	0/3/3/3
8	ATP	D	2001	9	-	4/22/38/38	0/3/3/3
11	ADP	5	2001	9	-	7/16/32/32	0/3/3/3
11	ADP	E	2001	9	-	8/16/32/32	0/3/3/3
11	ADP	3	2001	9	-	4/16/32/32	0/3/3/3
11	ADP	C	2001	9	-	3/16/32/32	0/3/3/3
8	ATP	4	2001	9	-	3/22/38/38	0/3/3/3

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	3	2001	ADP	C5-C4	4.50	1.47	1.39
11	5	2001	ADP	C5-C4	4.49	1.47	1.39
11	C	2001	ADP	C5-C4	4.39	1.47	1.39
11	E	2001	ADP	C5-C4	4.39	1.47	1.39
11	C	2001	ADP	C5-C6	2.66	1.48	1.41
11	5	2001	ADP	C5-C6	2.63	1.48	1.41
11	3	2001	ADP	C5-C6	2.61	1.48	1.41
11	E	2001	ADP	C5-C6	2.61	1.48	1.41
11	C	2001	ADP	C8-N7	2.47	1.36	1.31
11	E	2001	ADP	C8-N7	2.41	1.36	1.31
11	3	2001	ADP	C8-N7	2.34	1.36	1.31
11	5	2001	ADP	C8-N7	2.34	1.36	1.31
11	3	2001	ADP	C5-N7	-2.25	1.34	1.39
11	5	2001	ADP	C5-N7	-2.20	1.34	1.39
11	E	2001	ADP	C5-N7	-2.19	1.34	1.39
11	C	2001	ADP	C5-N7	-2.19	1.34	1.39

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	5	2001	ADP	C5-C4-N3	-6.35	118.47	126.75
11	C	2001	ADP	C5-C4-N3	-6.06	118.85	126.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	3	2001	ADP	C5-C4-N3	-6.04	118.87	126.75
11	E	2001	ADP	C5-C4-N3	-6.01	118.91	126.75
11	5	2001	ADP	N3-C4-N9	4.99	135.31	127.08
11	3	2001	ADP	N3-C4-N9	4.79	134.97	127.08
11	C	2001	ADP	N3-C4-N9	4.72	134.86	127.08
11	E	2001	ADP	N3-C4-N9	4.65	134.75	127.08
11	5	2001	ADP	C2-N3-C4	3.88	120.93	111.75
11	C	2001	ADP	C2-N3-C4	3.88	120.91	111.75
11	3	2001	ADP	PA-O3A-PB	-3.84	119.66	132.83
11	5	2001	ADP	PA-O3A-PB	-3.83	119.67	132.83
11	3	2001	ADP	C2-N3-C4	3.81	120.74	111.75
11	E	2001	ADP	C2-N3-C4	3.80	120.72	111.75
11	E	2001	ADP	PA-O3A-PB	-3.44	121.01	132.83
11	C	2001	ADP	PA-O3A-PB	-3.40	121.15	132.83
11	C	2001	ADP	N3-C2-N1	-3.29	123.45	128.60
11	C	2001	ADP	C4-C5-N7	-3.27	106.64	110.62
11	E	2001	ADP	C4-C5-N7	-3.25	106.66	110.62
11	E	2001	ADP	N3-C2-N1	-3.23	123.55	128.60
11	5	2001	ADP	C4-C5-N7	-3.22	106.70	110.62
11	3	2001	ADP	N3-C2-N1	-3.16	123.66	128.60
11	3	2001	ADP	C4-C5-N7	-3.13	106.81	110.62
11	5	2001	ADP	N3-C2-N1	-3.08	123.78	128.60
11	C	2001	ADP	C5-N7-C8	2.79	107.47	103.51
11	E	2001	ADP	C5-N7-C8	2.74	107.41	103.51
11	C	2001	ADP	C4-N9-C8	2.72	108.68	105.73
11	5	2001	ADP	C5-N7-C8	2.72	107.37	103.51
11	3	2001	ADP	C5-N7-C8	2.67	107.30	103.51
11	3	2001	ADP	C4-N9-C8	2.60	108.55	105.73
11	E	2001	ADP	C4-N9-C8	2.59	108.54	105.73
11	5	2001	ADP	C4-N9-C8	2.54	108.48	105.73
11	C	2001	ADP	C6-C5-N7	2.25	136.22	132.02
11	C	2001	ADP	N9-C8-N7	-2.19	110.92	113.91
11	E	2001	ADP	C6-C5-N7	2.18	136.09	132.02
11	3	2001	ADP	C6-C5-N7	2.12	135.97	132.02
11	E	2001	ADP	N9-C8-N7	-2.09	111.05	113.91
11	3	2001	ADP	C3'-C2'-C1'	2.09	105.40	101.43
11	5	2001	ADP	C6-C5-N7	2.04	135.82	132.02
8	B	2001	ATP	PB-O3B-PG	2.03	139.80	132.83
8	2	2001	ATP	PB-O3B-PG	2.02	139.76	132.83
8	7	2001	ATP	PB-O3B-PG	2.02	139.74	132.83
8	D	2001	ATP	PB-O3B-PG	2.01	139.72	132.83

There are no chirality outliers.

All (42) torsion outliers are listed below:

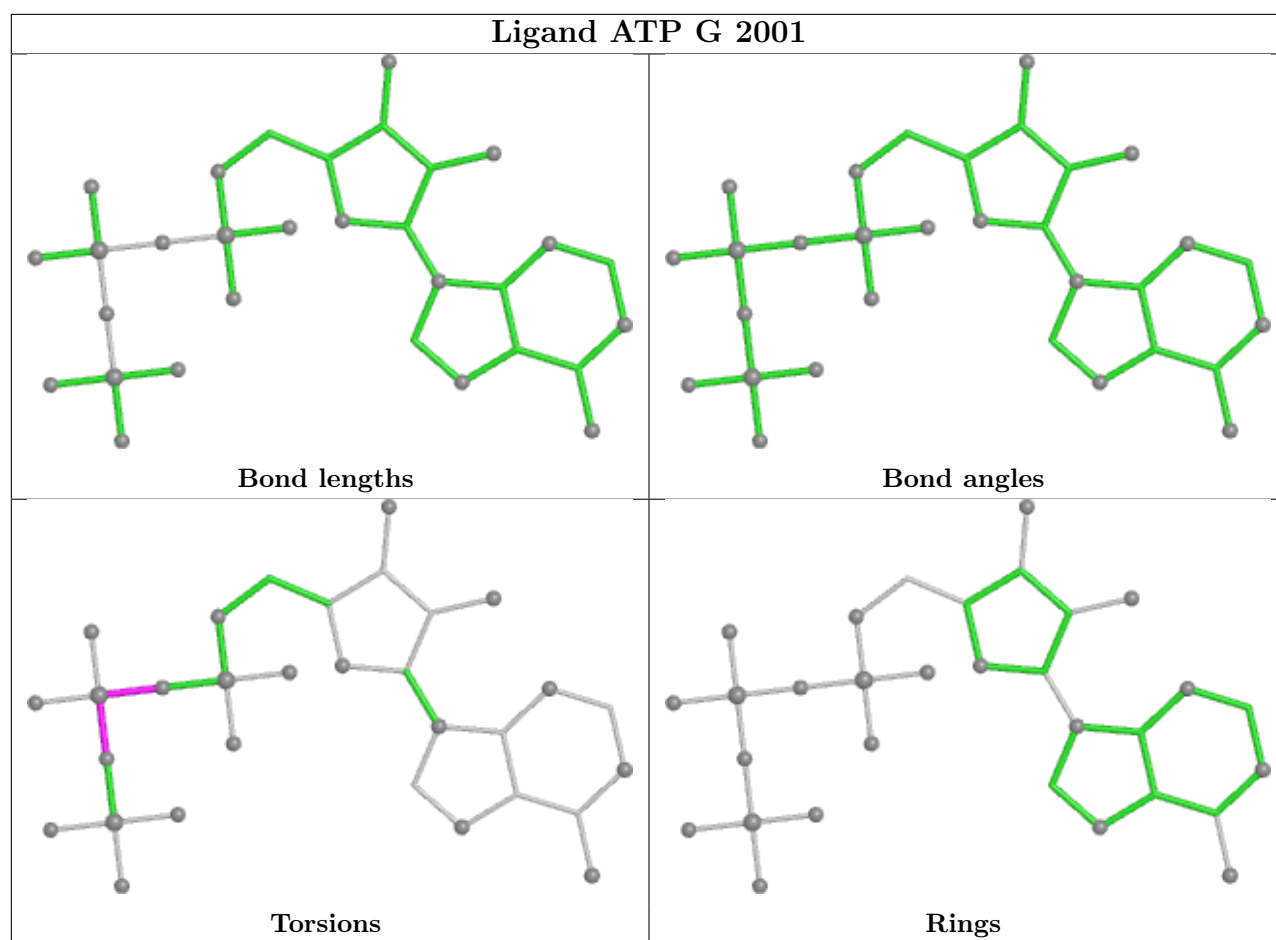
Mol	Chain	Res	Type	Atoms
8	2	2001	ATP	PB-O3B-PG-O2G
8	2	2001	ATP	C5'-O5'-PA-O3A
8	4	2001	ATP	PB-O3B-PG-O2G
8	B	2001	ATP	PB-O3B-PG-O2G
11	3	2001	ADP	PA-O3A-PB-O2B
11	5	2001	ADP	C5'-O5'-PA-O3A
11	5	2001	ADP	O4'-C4'-C5'-O5'
11	5	2001	ADP	C3'-C4'-C5'-O5'
11	C	2001	ADP	C5'-O5'-PA-O1A
11	C	2001	ADP	C5'-O5'-PA-O2A
11	E	2001	ADP	PA-O3A-PB-O2B
11	E	2001	ADP	C5'-O5'-PA-O1A
11	E	2001	ADP	C5'-O5'-PA-O2A
8	B	2001	ATP	O4'-C4'-C5'-O5'
11	E	2001	ADP	O4'-C4'-C5'-O5'
11	5	2001	ADP	O4'-C1'-N9-C4
11	E	2001	ADP	C3'-C4'-C5'-O5'
11	5	2001	ADP	O4'-C1'-N9-C8
8	B	2001	ATP	PB-O3B-PG-O1G
8	B	2001	ATP	C5'-O5'-PA-O3A
8	D	2001	ATP	C5'-O5'-PA-O3A
8	D	2001	ATP	PG-O3B-PB-O1B
8	G	2001	ATP	PA-O3A-PB-O2B
8	2	2001	ATP	C5'-O5'-PA-O1A
8	D	2001	ATP	C5'-O5'-PA-O1A
8	D	2001	ATP	C5'-O5'-PA-O2A
11	5	2001	ADP	C5'-O5'-PA-O1A
8	7	2001	ATP	PA-O3A-PB-O2B
11	3	2001	ADP	O4'-C4'-C5'-O5'
8	4	2001	ATP	PB-O3B-PG-O1G
11	E	2001	ADP	PA-O3A-PB-O1B
11	3	2001	ADP	PA-O3A-PB-O3B
11	E	2001	ADP	PA-O3A-PB-O3B
11	C	2001	ADP	C5'-O5'-PA-O3A
11	E	2001	ADP	C5'-O5'-PA-O3A
8	G	2001	ATP	PG-O3B-PB-O1B
8	G	2001	ATP	PA-O3A-PB-O1B
8	4	2001	ATP	O4'-C4'-C5'-O5'
11	3	2001	ADP	C3'-C4'-C5'-O5'
8	2	2001	ATP	PB-O3B-PG-O1G
11	5	2001	ADP	C2'-C1'-N9-C8
8	2	2001	ATP	C3'-C4'-C5'-O5'

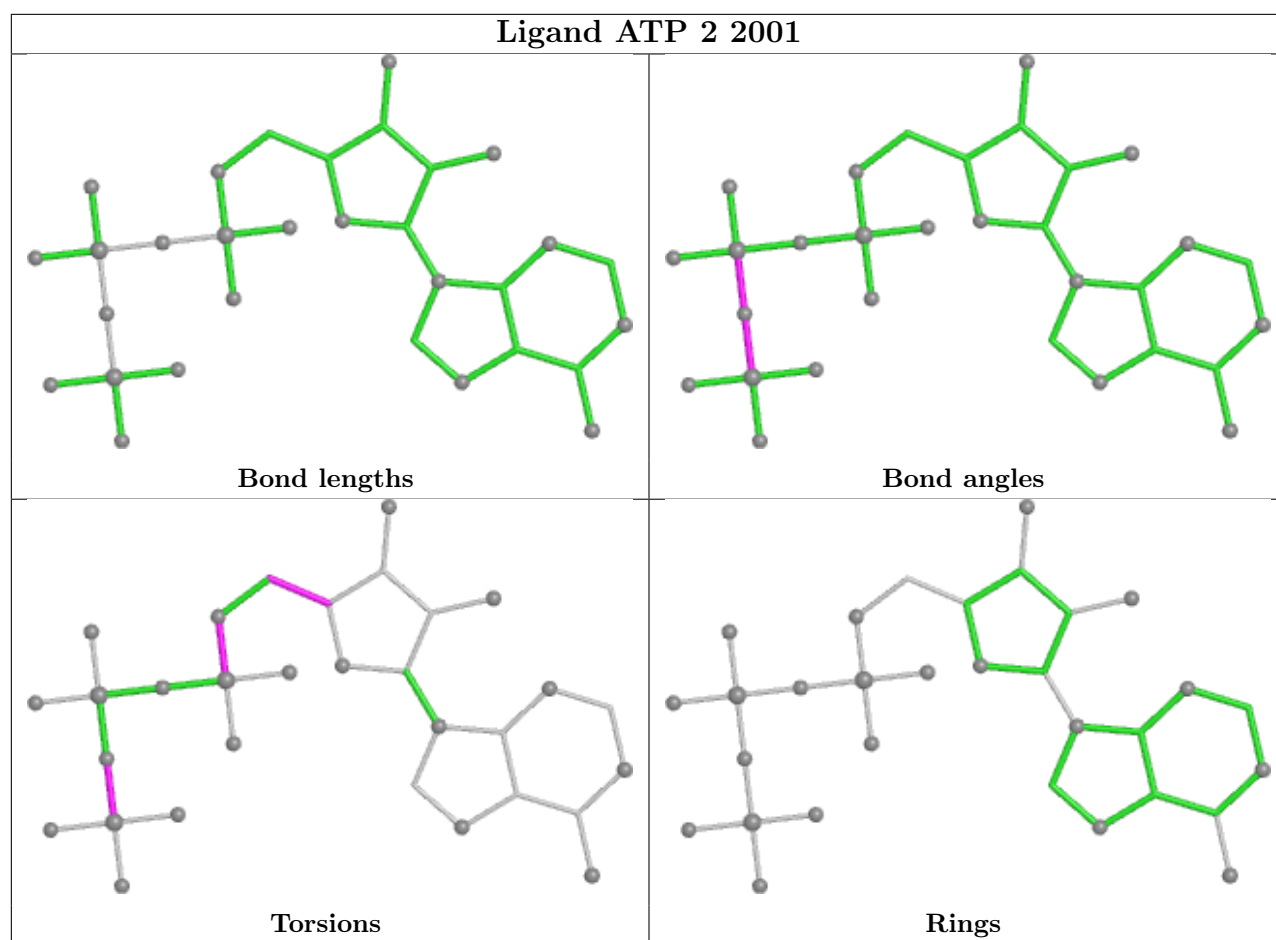
There are no ring outliers.

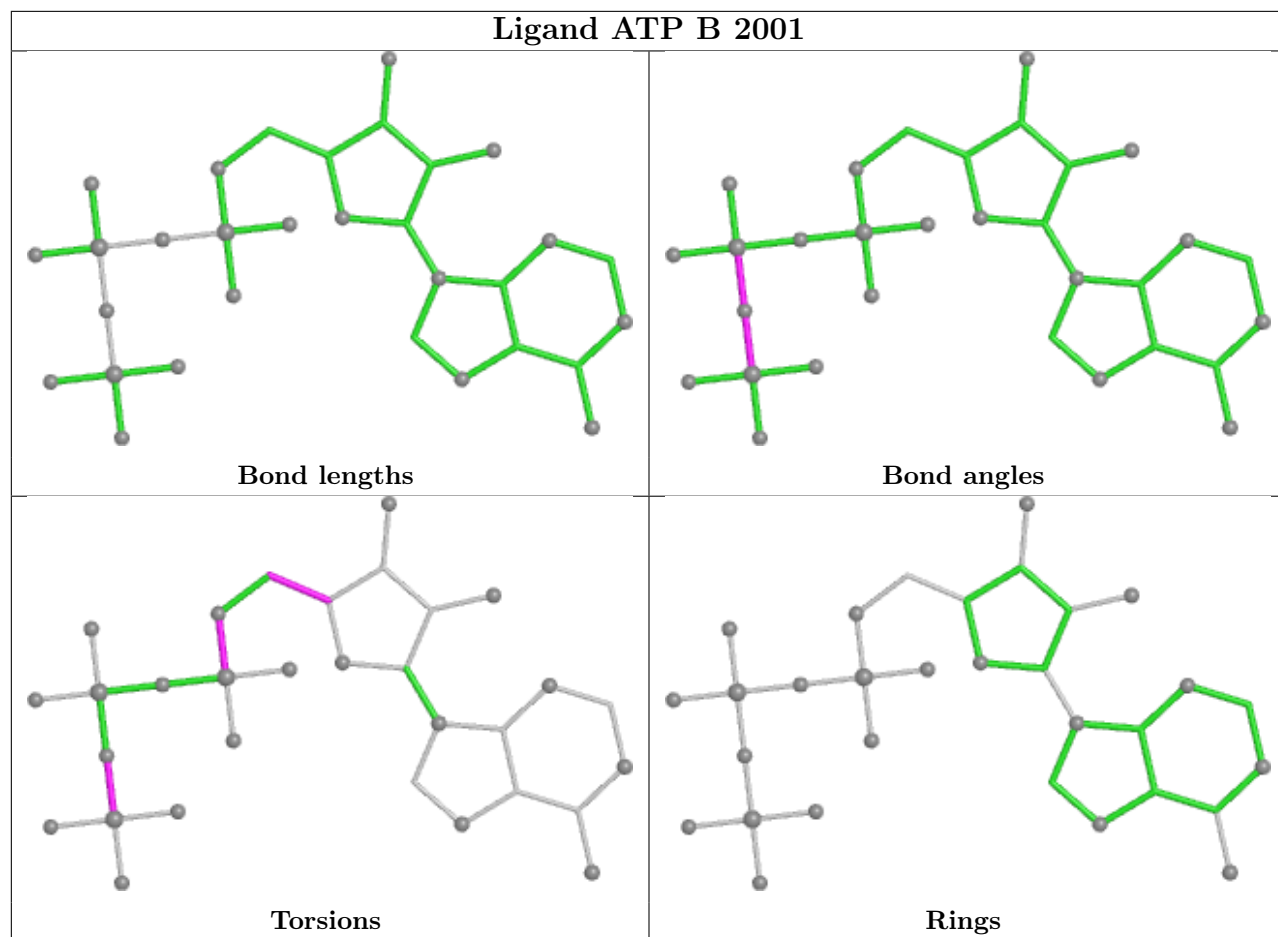
5 monomers are involved in 10 short contacts:

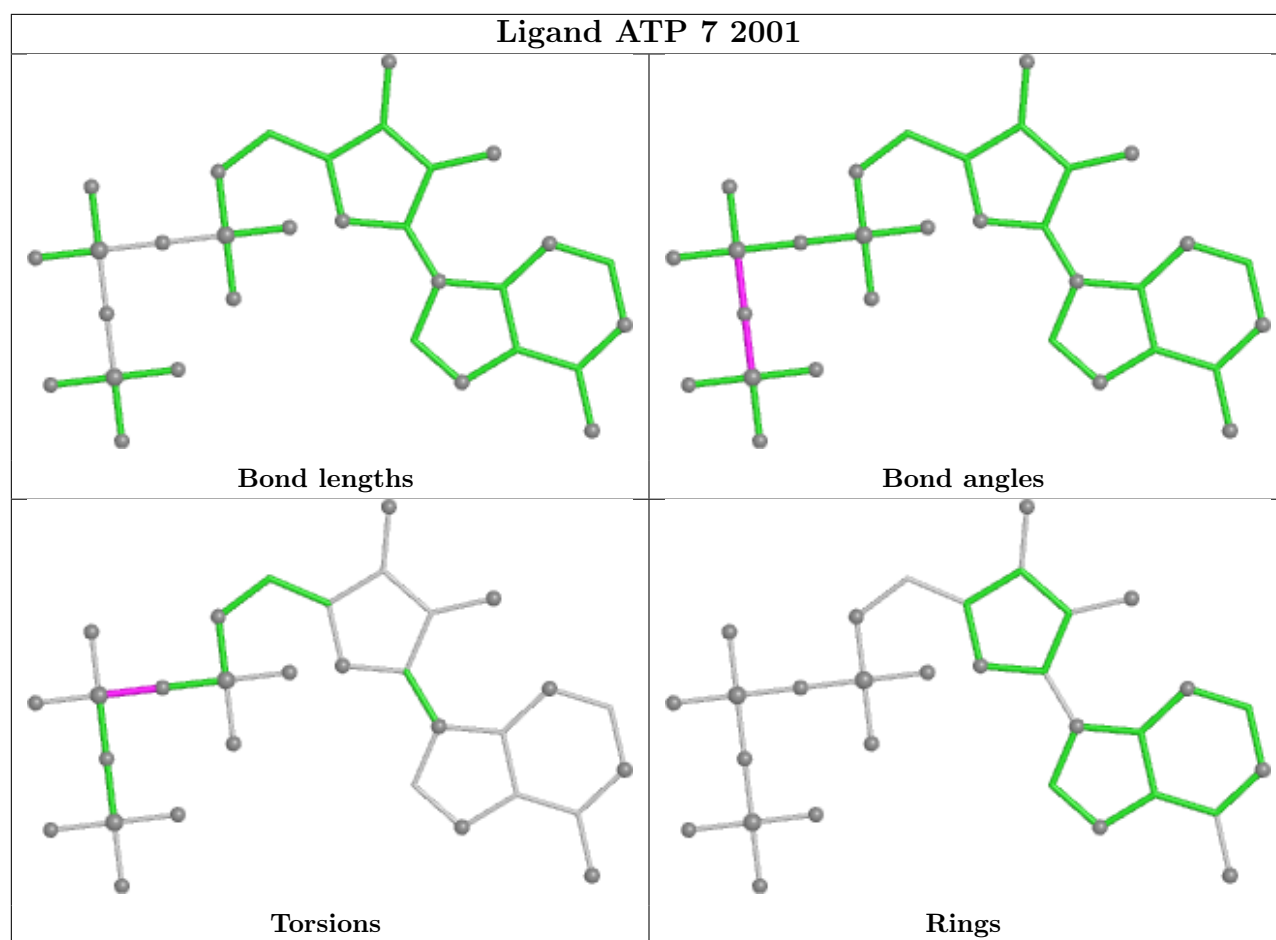
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	D	2001	ATP	1	0
11	5	2001	ADP	3	0
11	3	2001	ADP	2	0
11	C	2001	ADP	2	0
8	4	2001	ATP	2	0

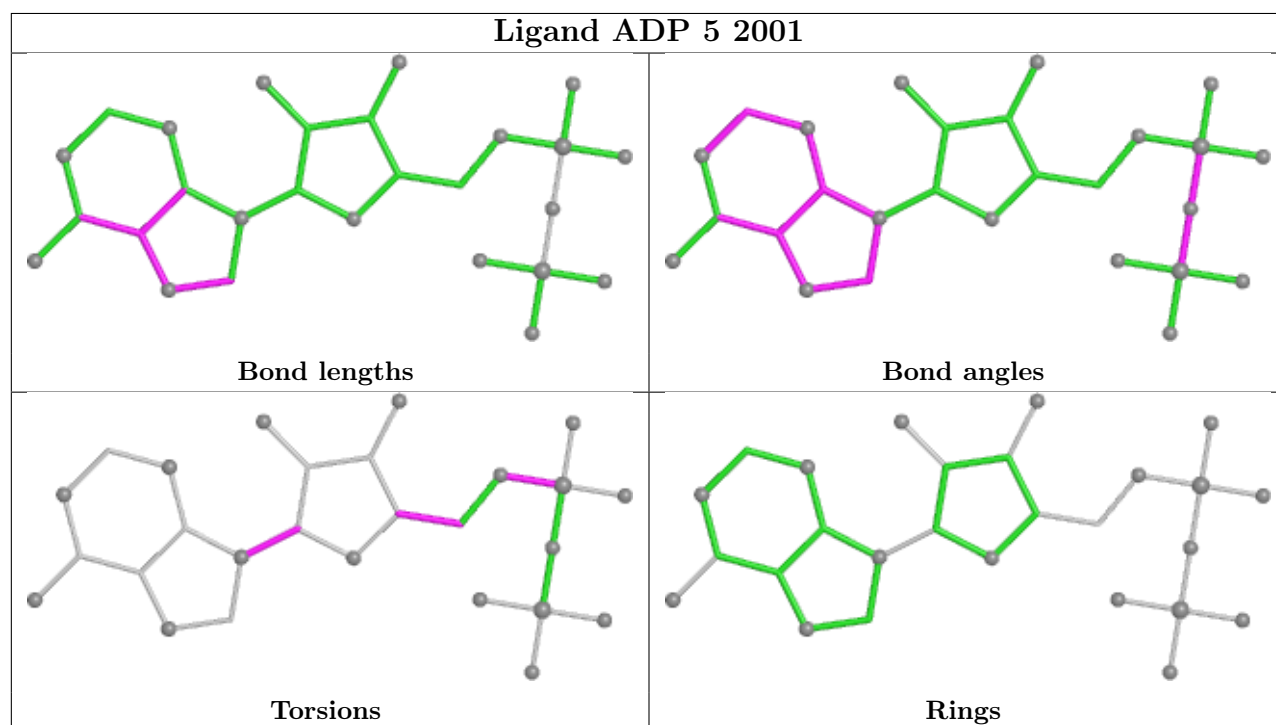
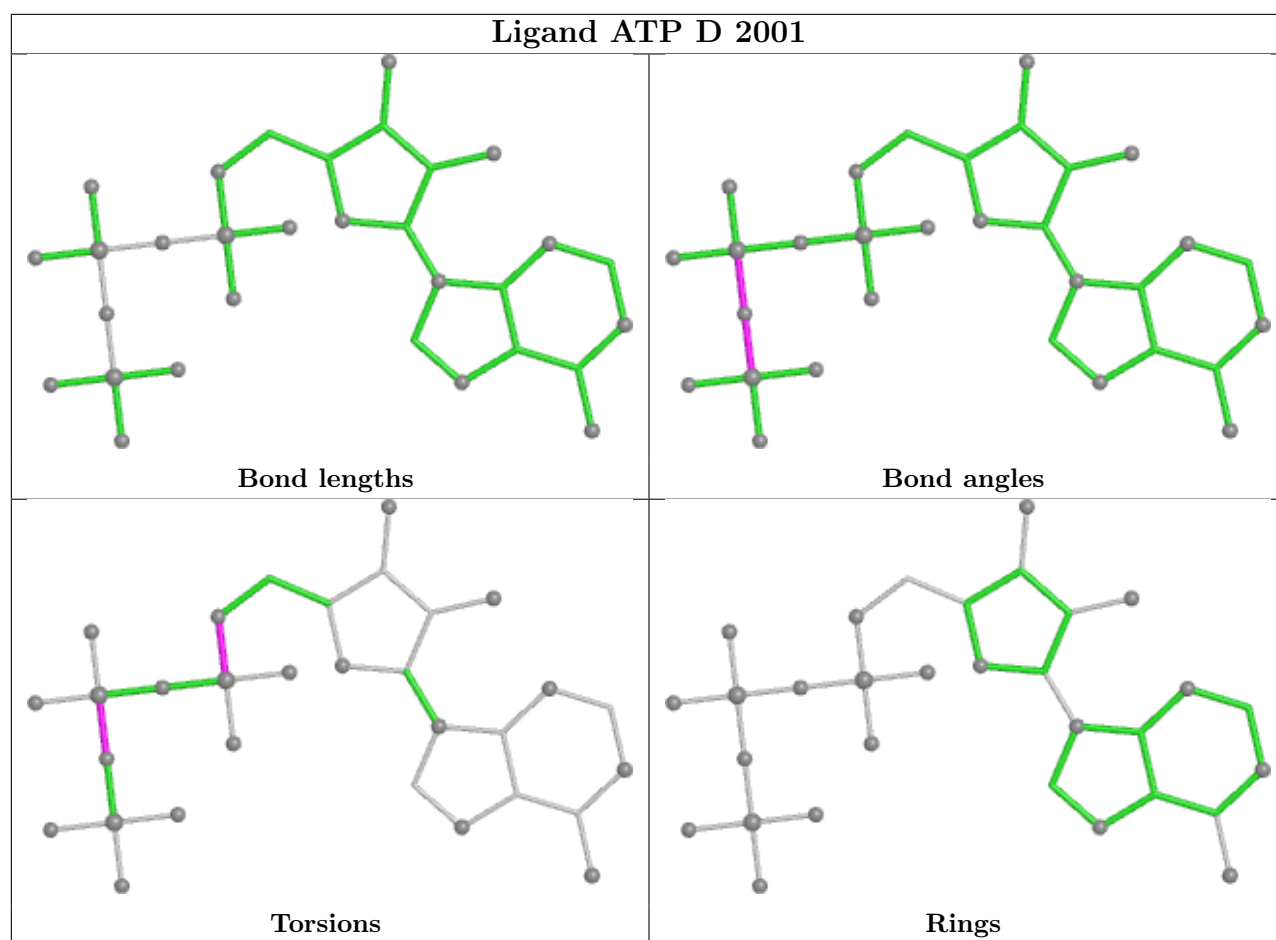
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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.

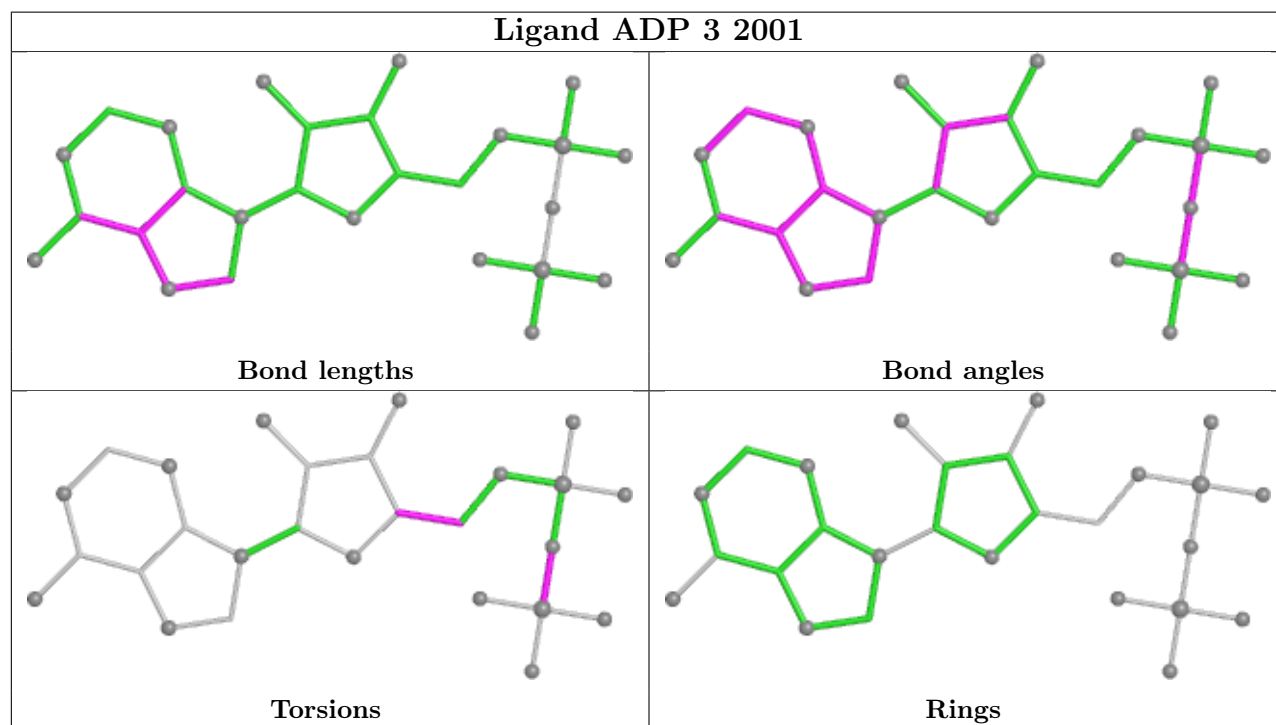
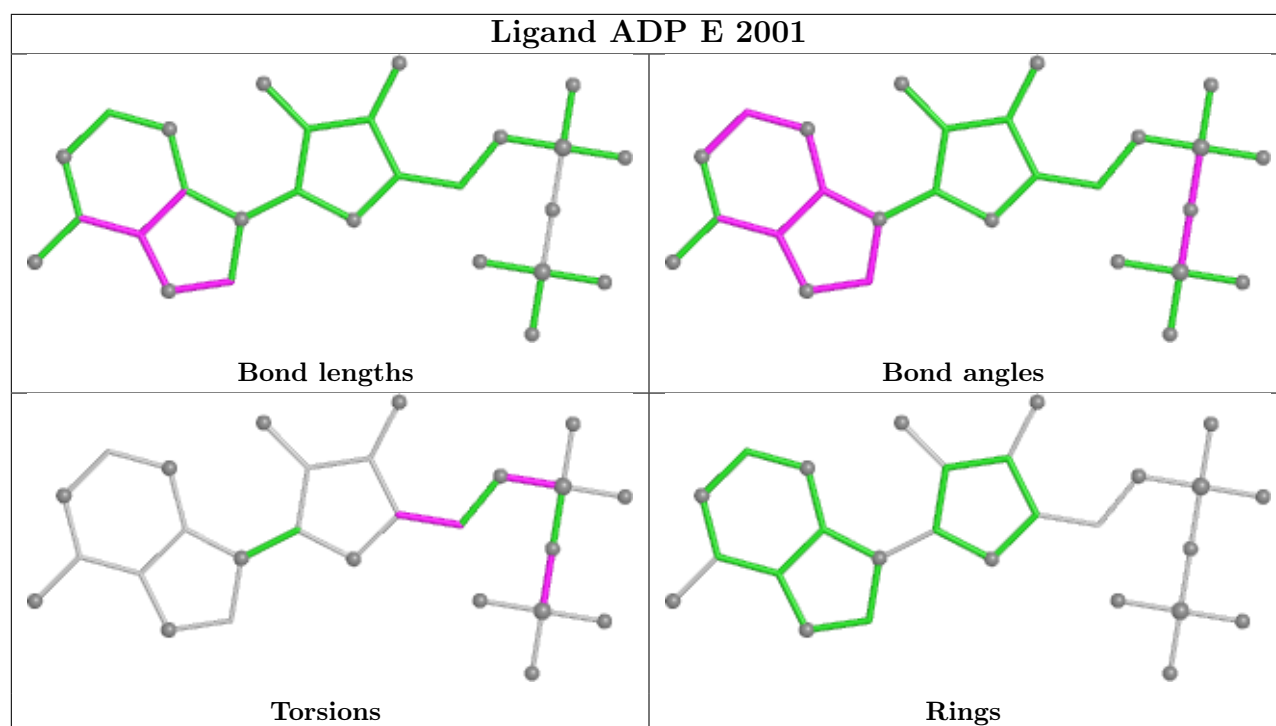


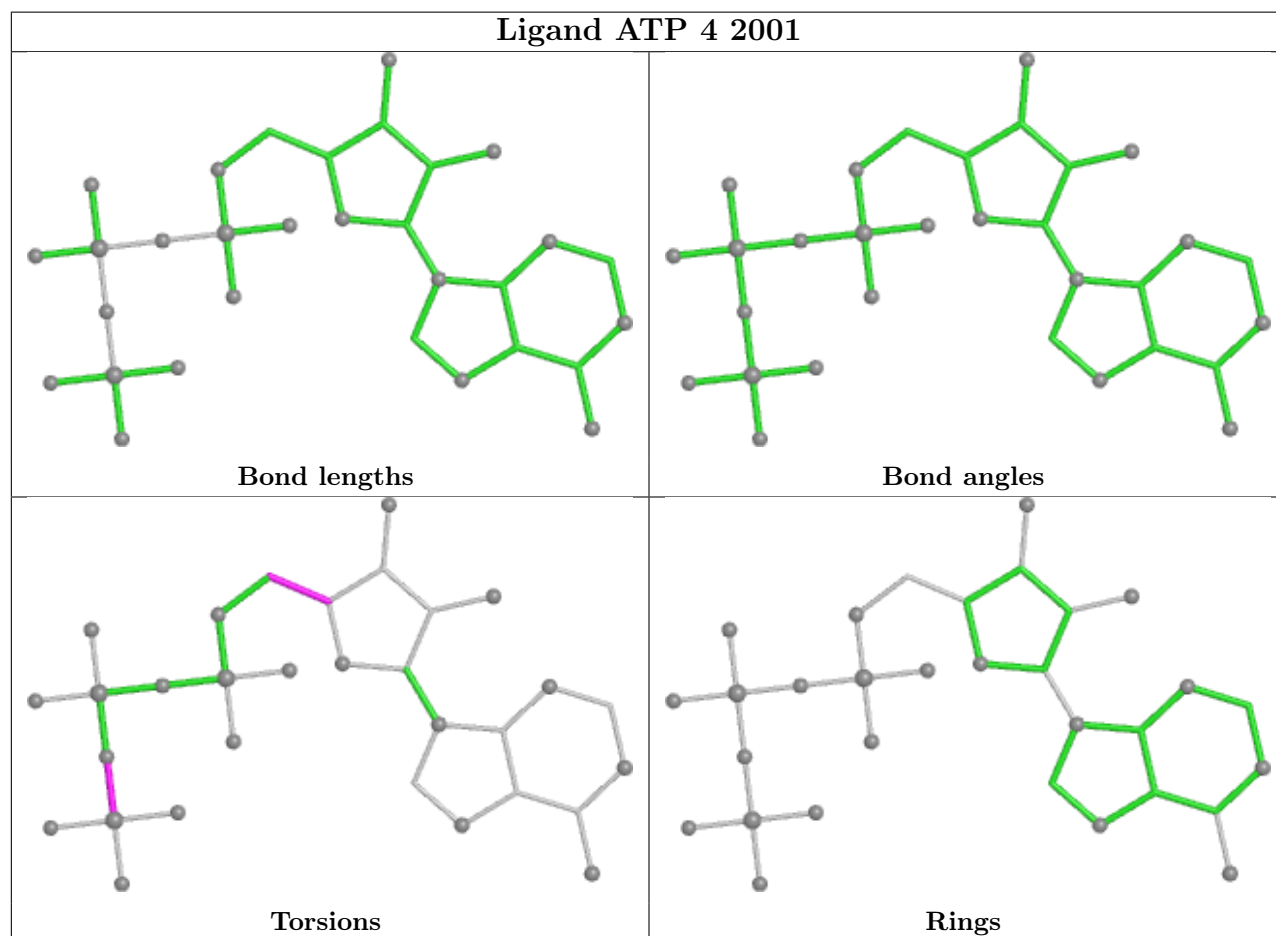
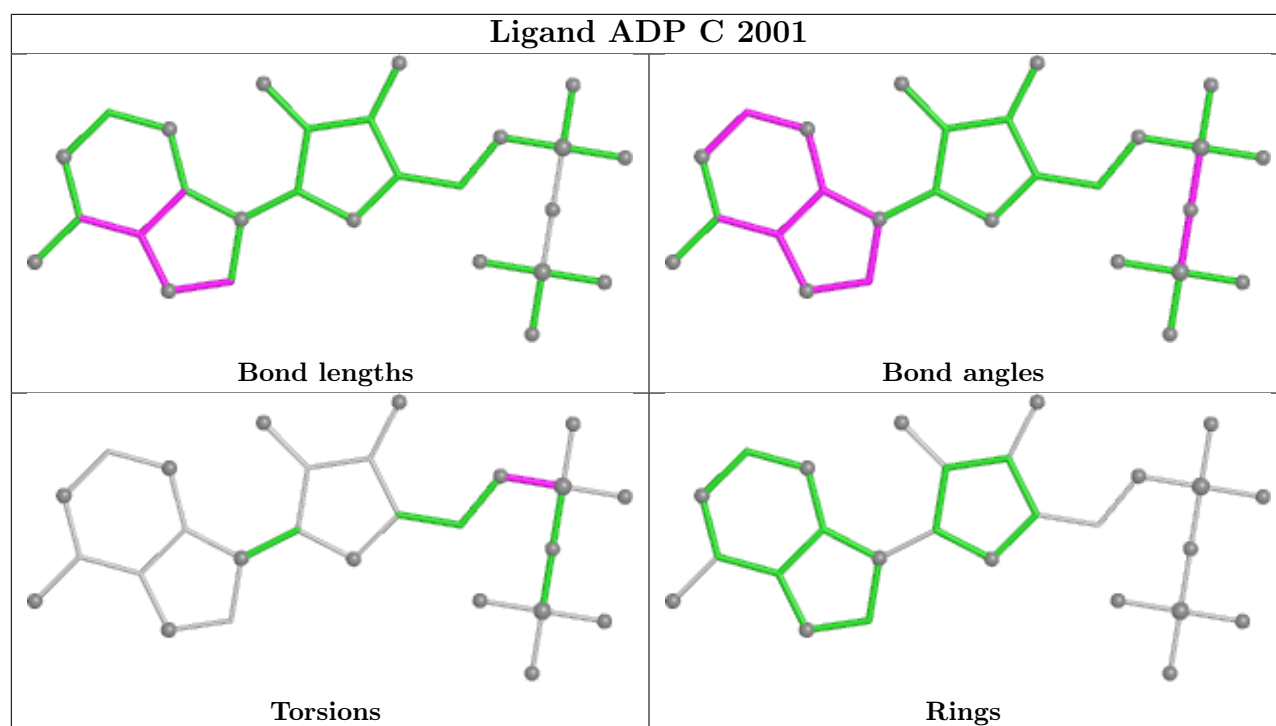












5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

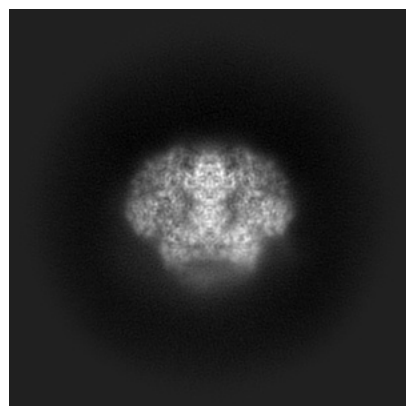
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-66553. These allow visual inspection of the internal detail of the map and identification of artifacts.

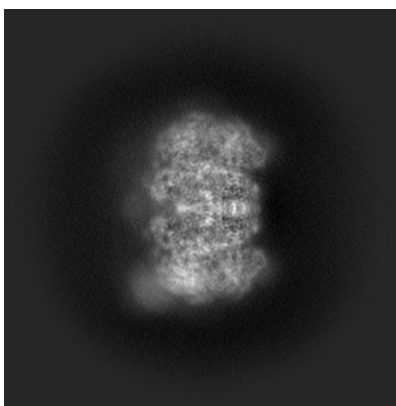
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

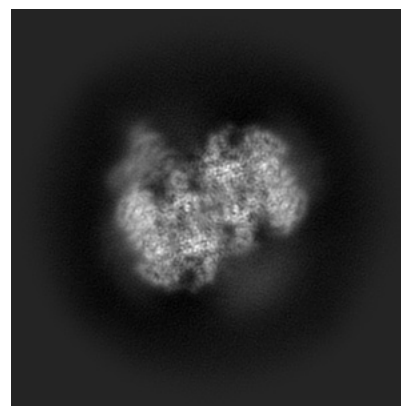
6.1.1 Primary map



X

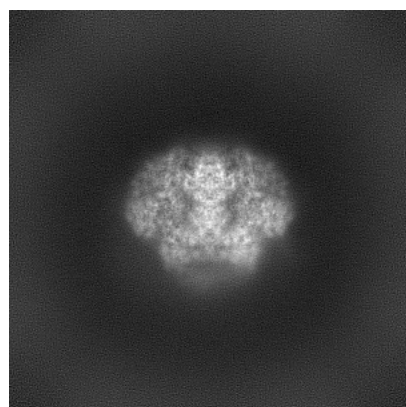


Y

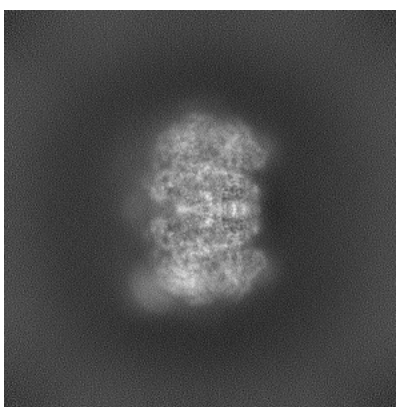


Z

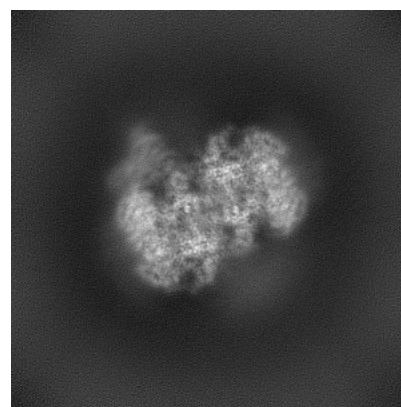
6.1.2 Raw map



X



Y

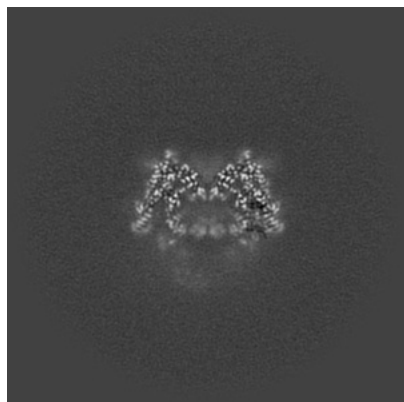


Z

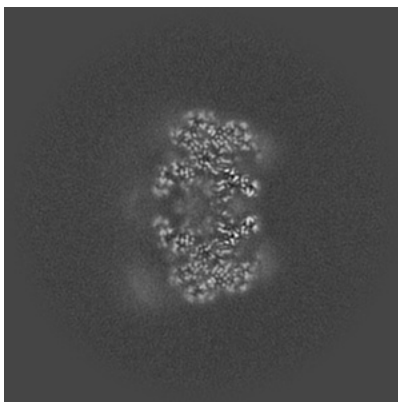
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

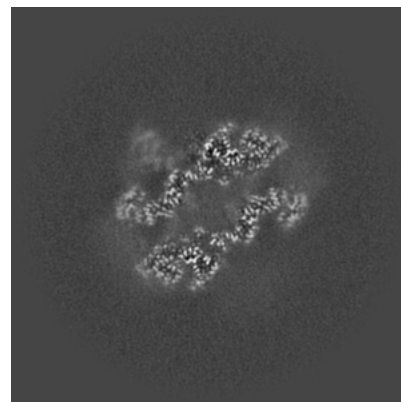
6.2.1 Primary map



X Index: 200

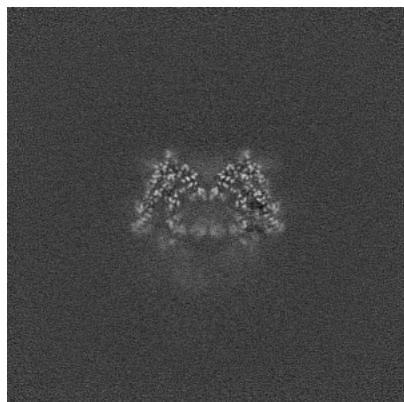


Y Index: 200

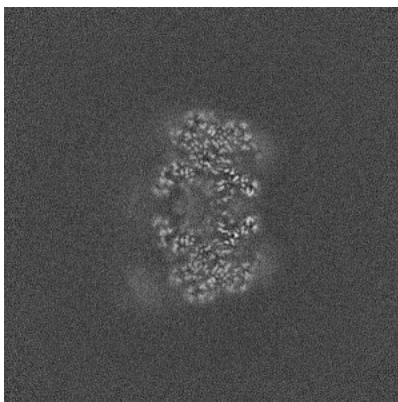


Z Index: 200

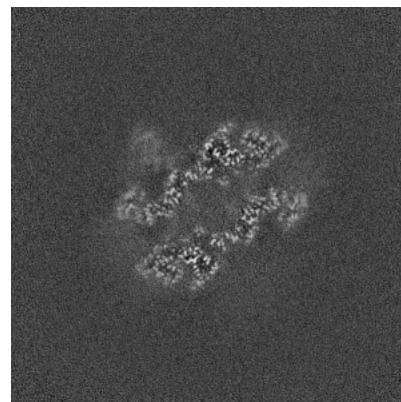
6.2.2 Raw map



X Index: 200



Y Index: 200

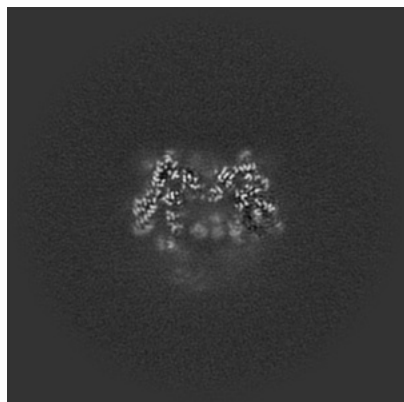


Z Index: 200

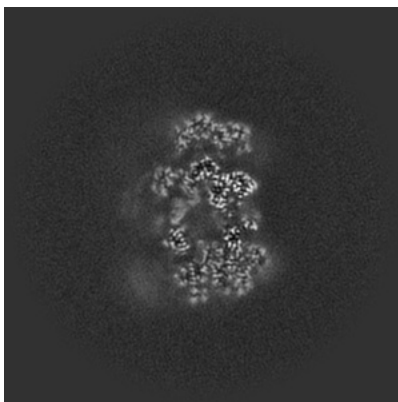
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

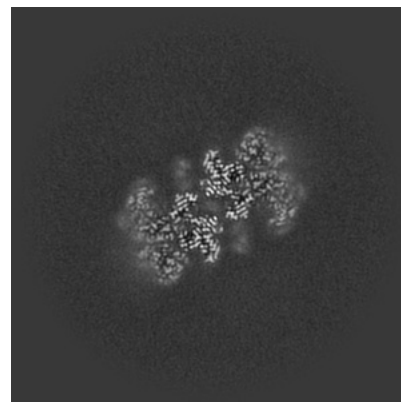
6.3.1 Primary map



X Index: 197

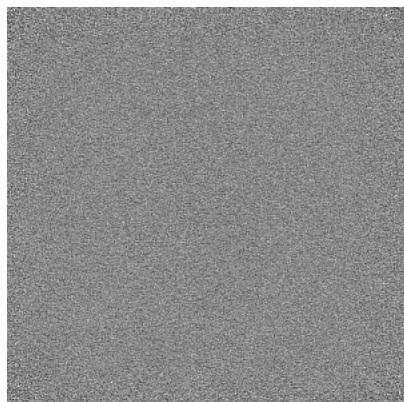


Y Index: 192

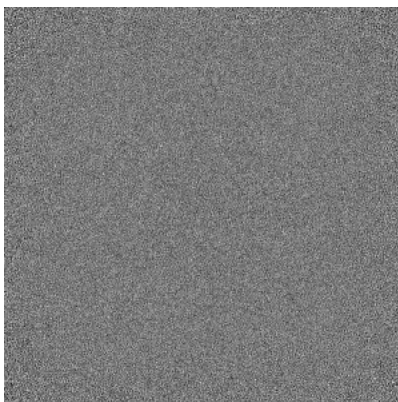


Z Index: 230

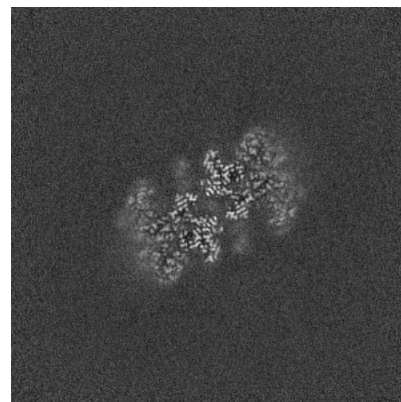
6.3.2 Raw map



X Index: 0



Y Index: 0

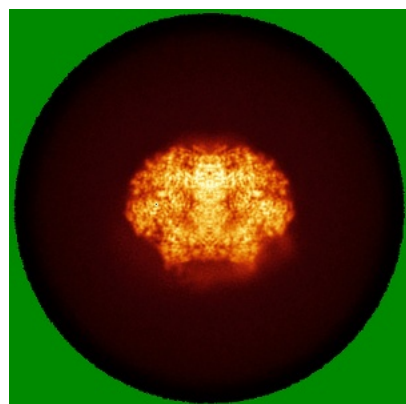


Z Index: 230

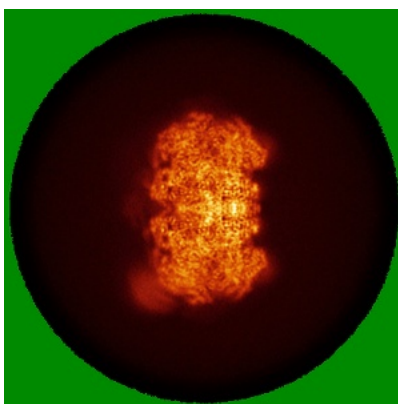
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

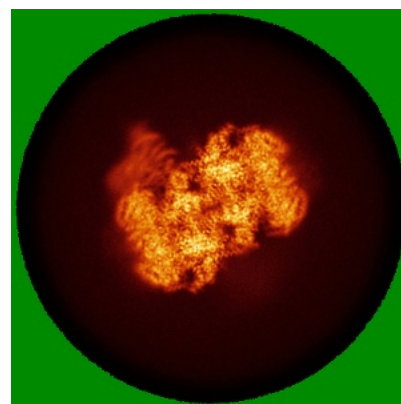
6.4.1 Primary map



X

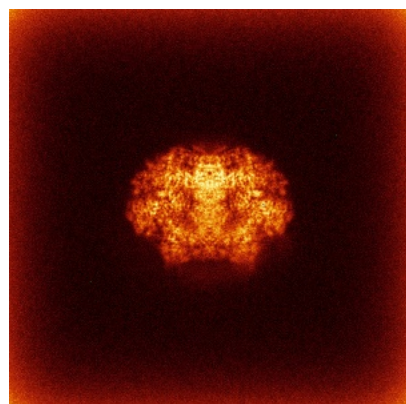


Y

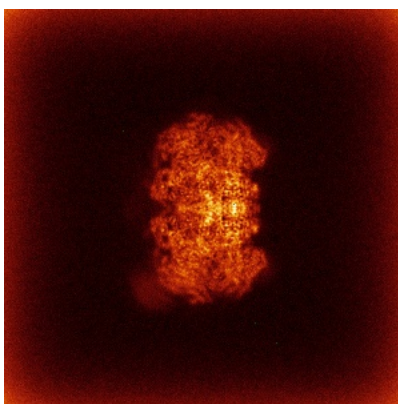


Z

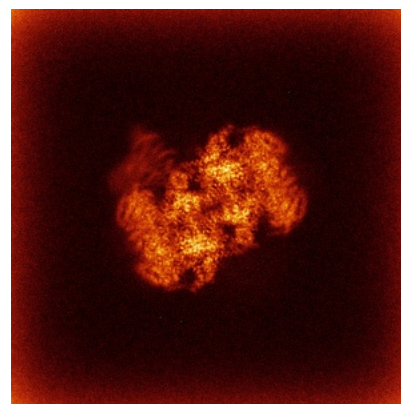
6.4.2 Raw map



X



Y

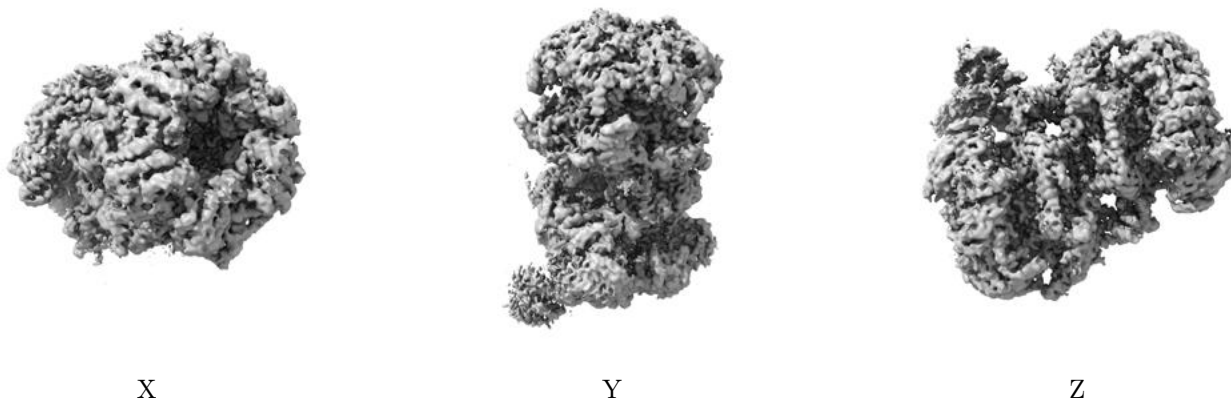


Z

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

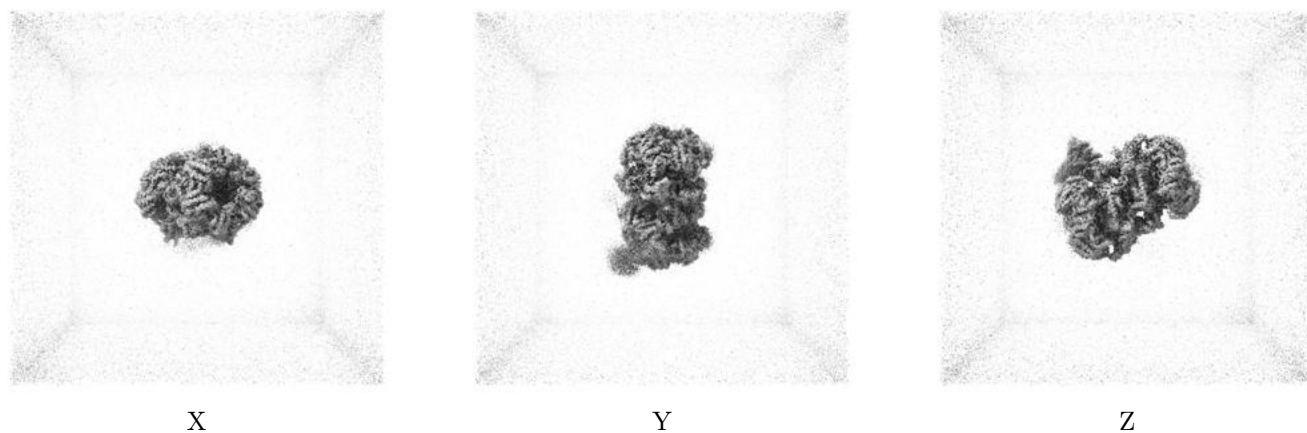
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.154. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

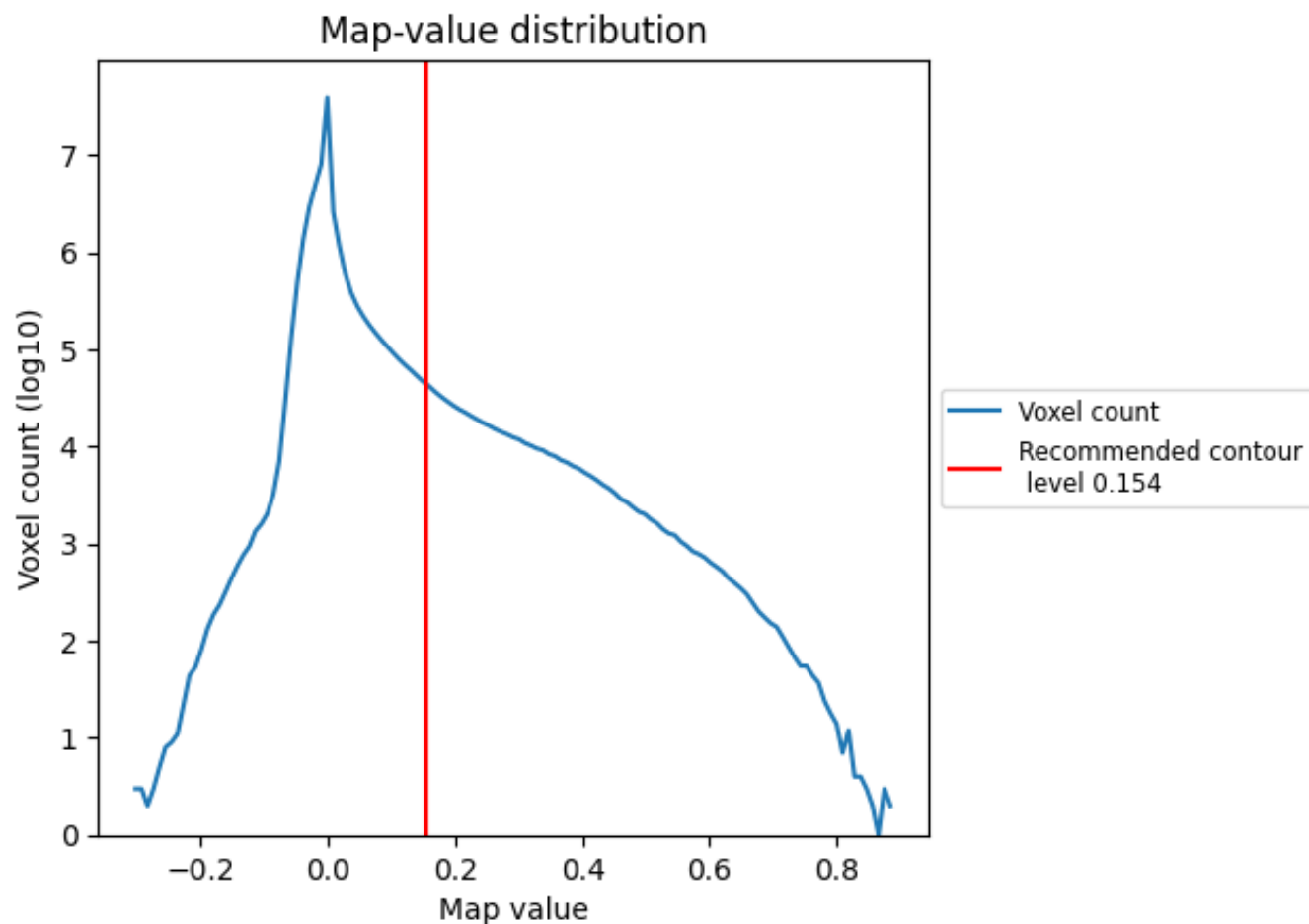
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

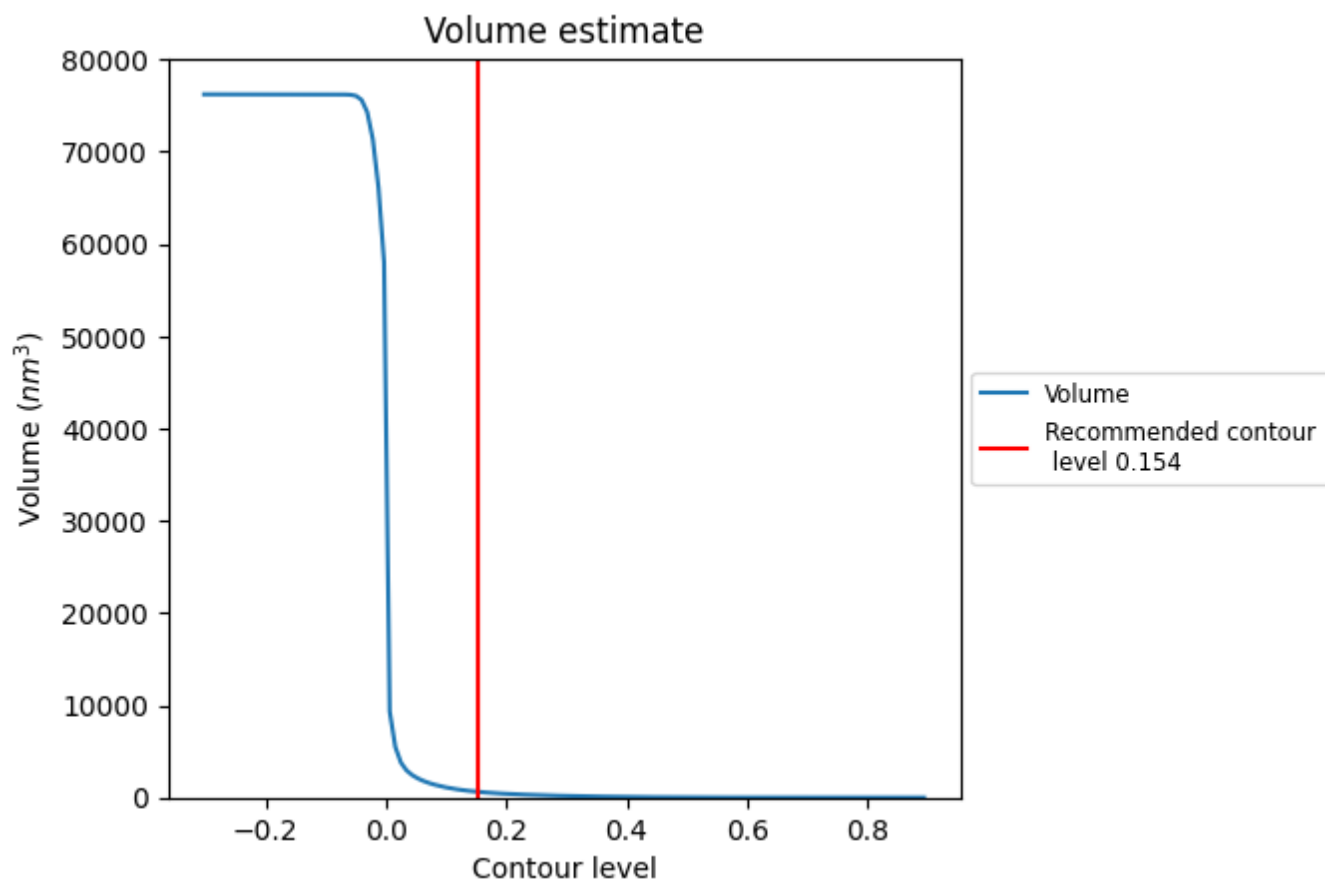
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

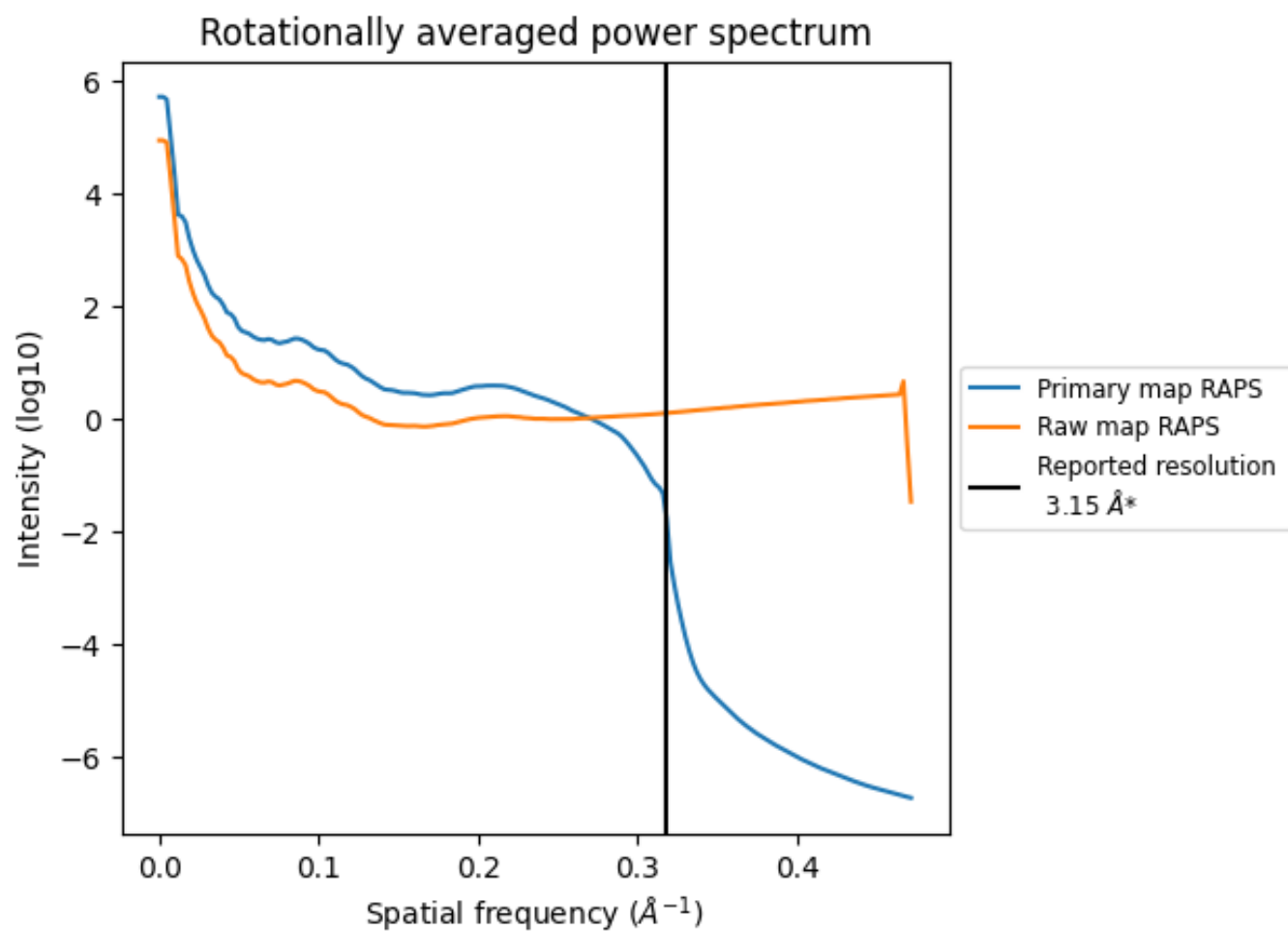
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 615 nm³; this corresponds to an approximate mass of 556 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 ⓘ

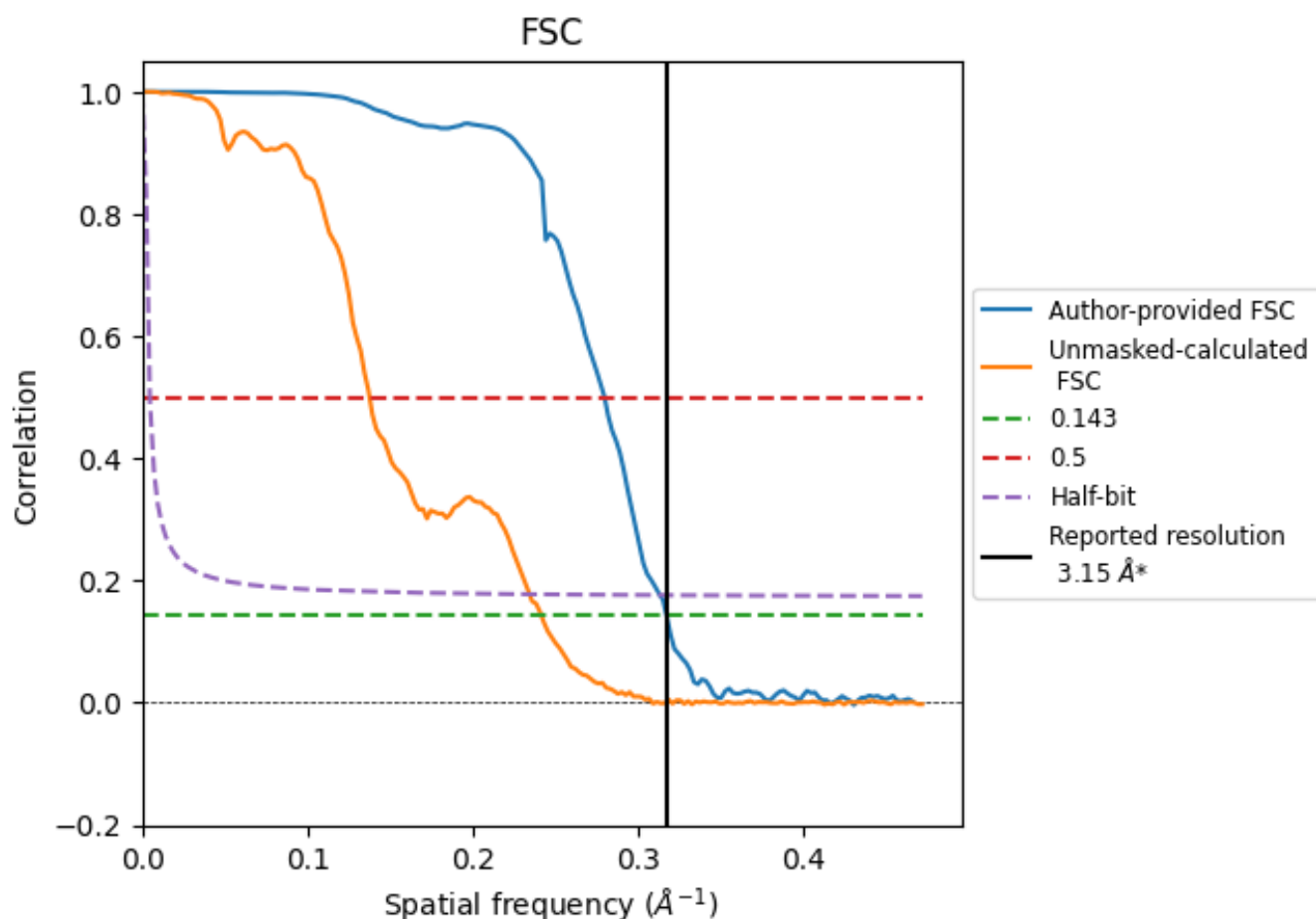


*Reported resolution corresponds to spatial frequency of 0.317 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.317 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

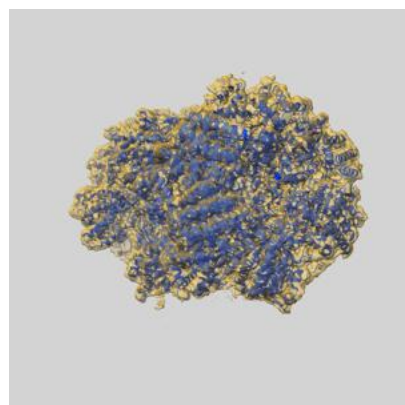
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.15	-	-
Author-provided FSC curve	3.15	3.58	3.19
Unmasked-calculated*	4.14	7.27	4.27

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.14 differs from the reported value 3.15 by more than 10 %

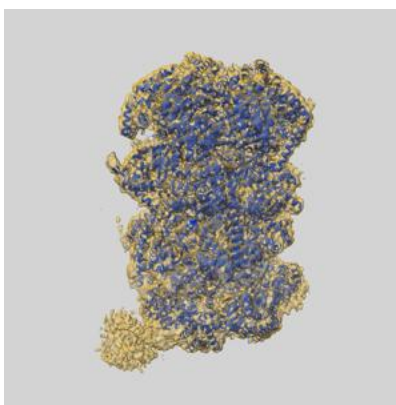
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-66553 and PDB model 9X4M. Per-residue inclusion information can be found in section [3](#) on page [8](#).

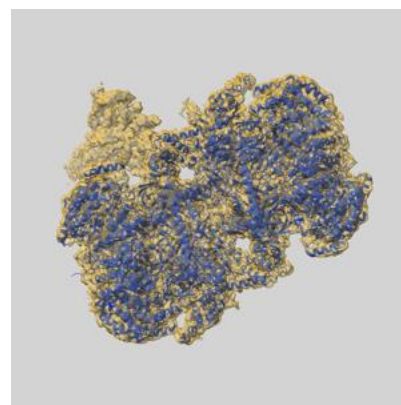
9.1 Map-model overlay [i](#)



X



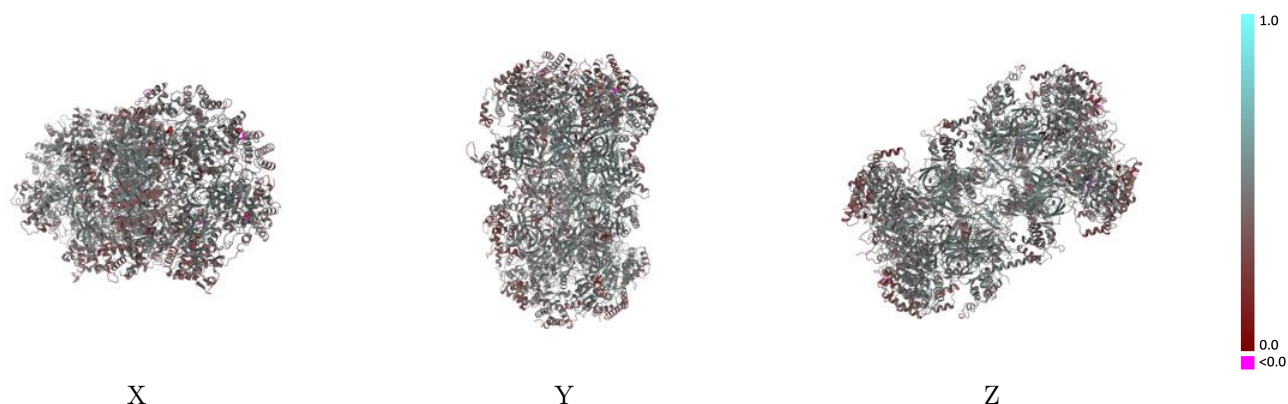
Y



Z

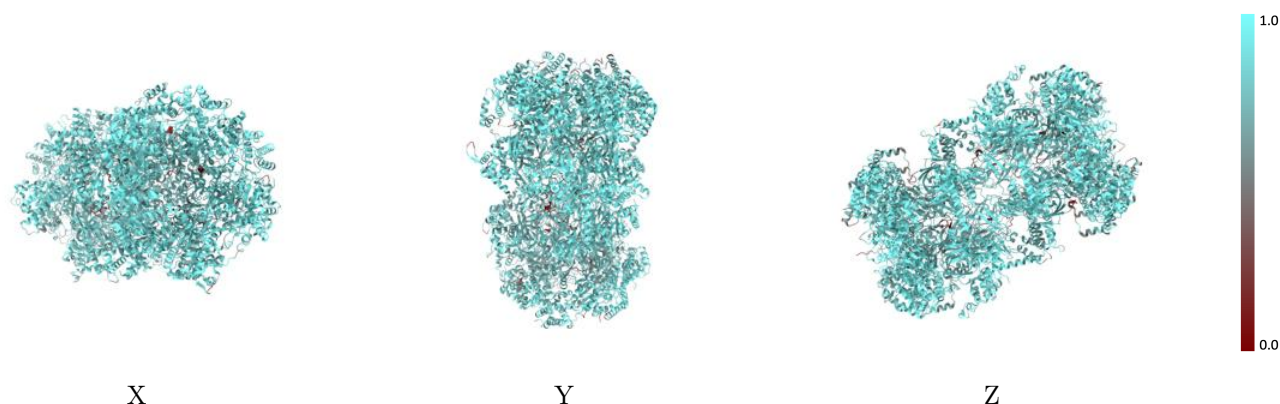
The images above show the 3D surface view of the map at the recommended contour level 0.154 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



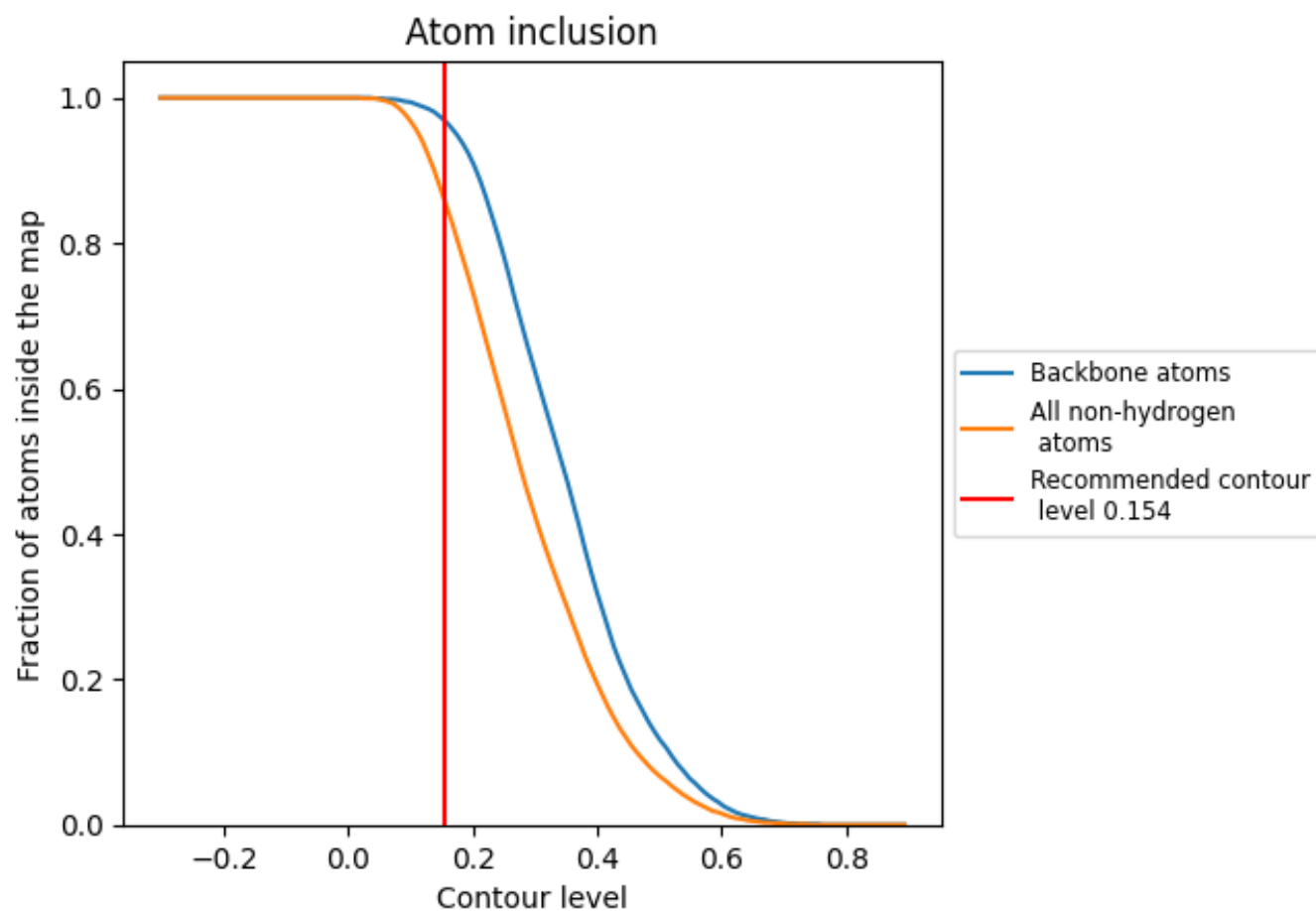
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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



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 (0.154).

9.4 Atom inclusion [i](#)



At the recommended contour level, 97% 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 (0.154) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8600	0.4530
2	0.8210	0.4180
3	0.8900	0.4770
4	0.8730	0.4650
5	0.8450	0.4500
6	0.8220	0.4290
7	0.8890	0.4730
B	0.8380	0.4260
C	0.8900	0.4780
D	0.8740	0.4640
E	0.8520	0.4500
F	0.8260	0.4330
G	0.8950	0.4680
X	0.9700	0.4540

1.0

0.0

<0.0