



Full wwPDB EM Validation Report ⓘ

Mar 7, 2026 – 02:58 AM UTC

PDB ID : 6JCZ / pdb_00006jcz
EMDB ID : EMD-9800
Title : Cryo-EM Structure of *Sulfolobus solfataricus* ketol-acid reductoisomerase (Sso-KARI) in complex with Mg²⁺, NADPH, and CPD at pH7.5
Authors : Chen, C.Y.; Chang, Y.C.; Lin, K.F.; Huang, C.H.; Lin, B.L.; Ko, T.P.; Hsieh, D.L.; Tsai, M.D.
Deposited on : 2019-01-30
Resolution : 3.35 Å (reported)
Based on initial model : 6JCV

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.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
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) : 2.49

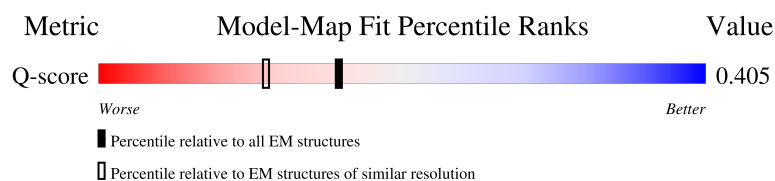
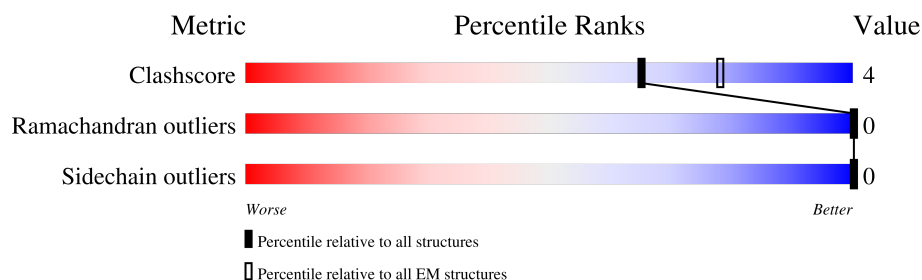
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.35 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.



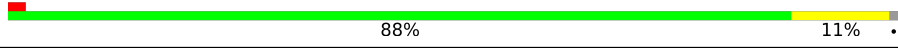
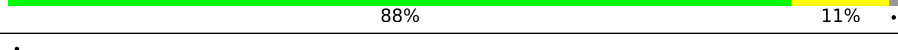
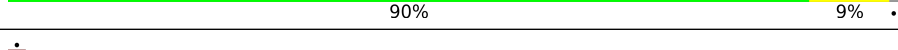
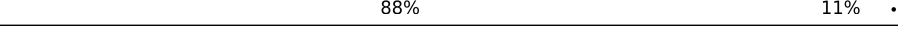
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14390 (2.85 - 3.85)

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	A	333	
1	B	333	
1	C	333	

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Mol	Chain	Length	Quality of chain
1	D	333	 90%9%
1	E	333	 89%10%
1	F	333	 88%11%
1	G	333	 89%11%
1	H	333	 89%9%
1	I	333	 89%10%
1	J	333	 88%11%
1	K	333	 90%9%
1	L	333	 88%11%

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 63836 atoms, of which 31885 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 Putative ketol-acid reductoisomerase 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	B	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	C	331	Total	C	H	N	O	S	0	0
			5236	1682	2632	428	484	10		
1	D	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	E	329	Total	C	H	N	O	S	0	0
			5210	1674	2622	425	479	10		
1	F	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	G	330	Total	C	H	N	O	S	0	0
			5221	1678	2625	426	482	10		
1	H	329	Total	C	H	N	O	S	0	0
			5210	1674	2622	425	479	10		
1	I	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	J	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	K	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		
1	L	330	Total	C	H	N	O	S	0	0
			5224	1678	2628	427	481	10		

- Molecule 2 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

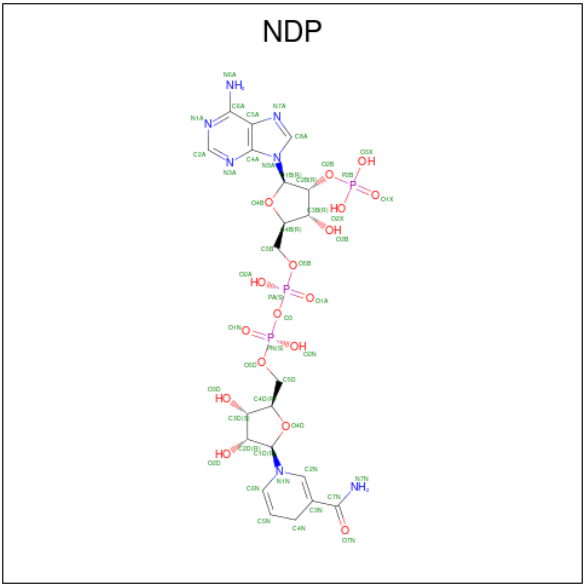
Mol	Chain	Residues	Atoms		AltConf
2	A	3	Total	Mg	0
			3	3	
2	B	1	Total	Mg	0
			1	1	
2	C	3	Total	Mg	0
			3	3	

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Mol	Chain	Residues	Atoms		AltConf
2	D	1	Total	Mg	0
			1	1	
2	E	2	Total	Mg	0
			2	2	
2	F	2	Total	Mg	0
			2	2	
2	G	2	Total	Mg	0
			2	2	
2	H	2	Total	Mg	0
			2	2	
2	I	2	Total	Mg	0
			2	2	
2	J	2	Total	Mg	0
			2	2	
2	K	2	Total	Mg	0
			2	2	
2	L	2	Total	Mg	0
			2	2	

- Molecule 3 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula: C₂₁H₃₀N₇O₁₇P₃).



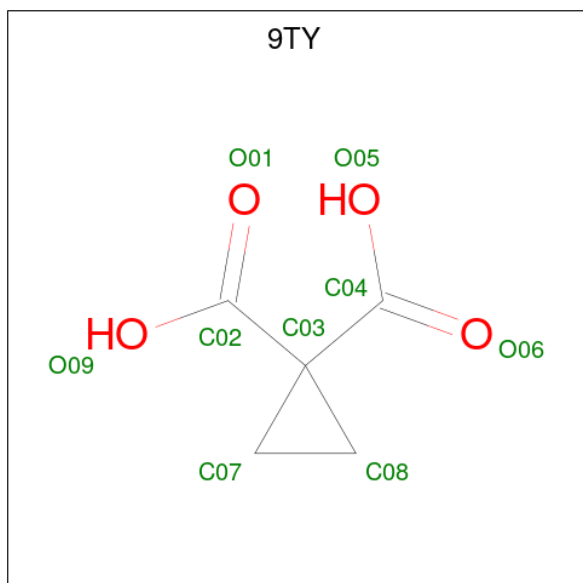
Mol	Chain	Residues	Atoms						AltConf
3	A	1	Total 74	C 21	H 26	N 7	O 17	P 3	0
3	B	1	Total 74	C 21	H 26	N 7	O 17	P 3	0

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Mol	Chain	Residues	Atoms						AltConf
3	C	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	D	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	E	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	F	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	G	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	H	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	I	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	J	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	K	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	
3	L	1	Total	C	H	N	O	P	0
			74	21	26	7	17	3	

- Molecule 4 is cyclopropane-1,1-dicarboxylic acid (CCD ID: 9TY) (formula: $C_5H_6O_4$).



Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	H	O	0
			13	5	4	4	

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Mol	Chain	Residues	Atoms				AltConf
4	B	1	Total	C	H	O	0
			13	5	4	4	
4	C	1	Total	C	H	O	0
			13	5	4	4	
4	D	1	Total	C	H	O	0
			13	5	4	4	
4	E	1	Total	C	H	O	0
			13	5	4	4	
4	F	1	Total	C	H	O	0
			13	5	4	4	
4	G	1	Total	C	H	O	0
			13	5	4	4	
4	H	1	Total	C	H	O	0
			13	5	4	4	
4	I	1	Total	C	H	O	0
			13	5	4	4	
4	J	1	Total	C	H	O	0
			13	5	4	4	
4	K	1	Total	C	H	O	0
			13	5	4	4	
4	L	1	Total	C	H	O	0
			13	5	4	4	

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		AltConf
5	A	8	Total	O	0
			8	8	
5	B	8	Total	O	0
			8	8	
5	C	6	Total	O	0
			6	6	
5	D	9	Total	O	0
			9	9	
5	E	8	Total	O	0
			8	8	
5	F	9	Total	O	0
			9	9	
5	G	5	Total	O	0
			5	5	
5	H	7	Total	O	0
			7	7	

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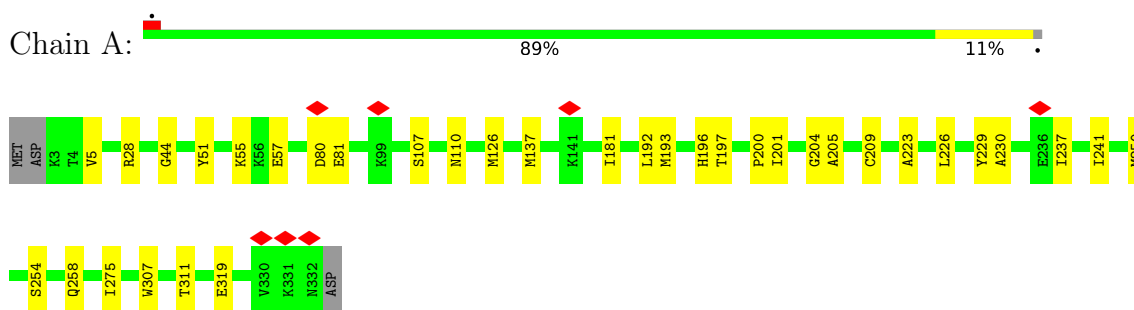
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Mol	Chain	Residues	Atoms		AltConf
5	I	10	Total 10	O 10	0
5	J	7	Total 7	O 7	0
5	K	9	Total 9	O 9	0
5	L	13	Total 13	O 13	0

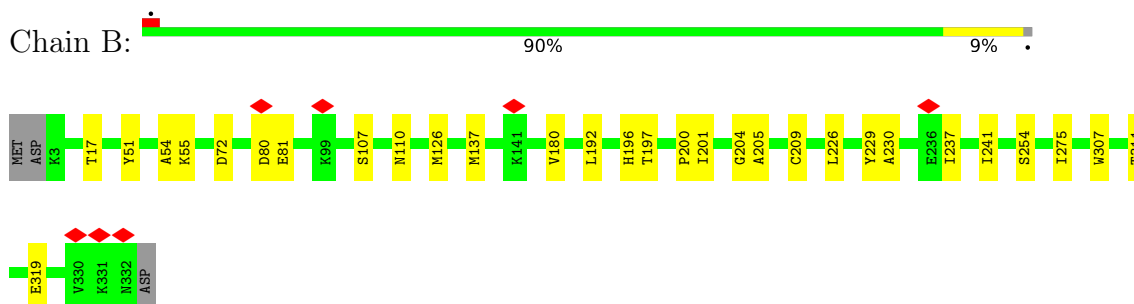
3 Residue-property plots [i](#)

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.

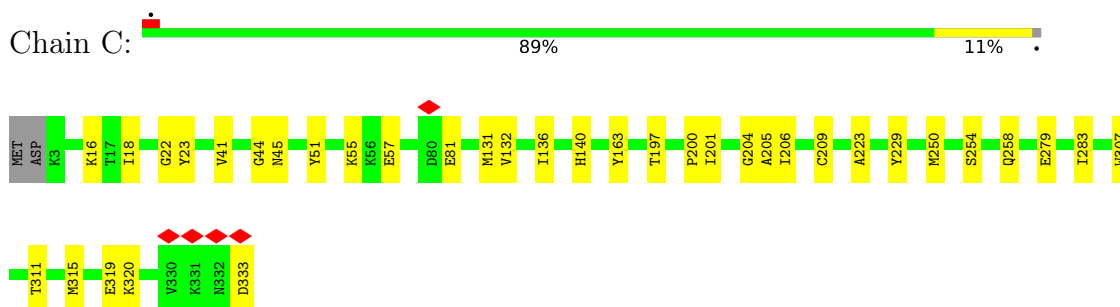
- Molecule 1: Putative ketol-acid reductoisomerase 2



- Molecule 1: Putative ketol-acid reductoisomerase 2

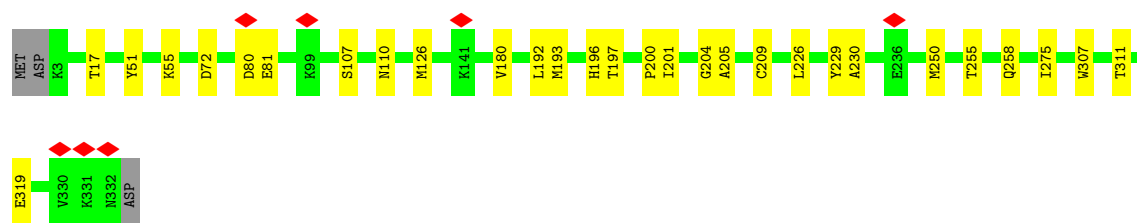


- Molecule 1: Putative ketol-acid reductoisomerase 2



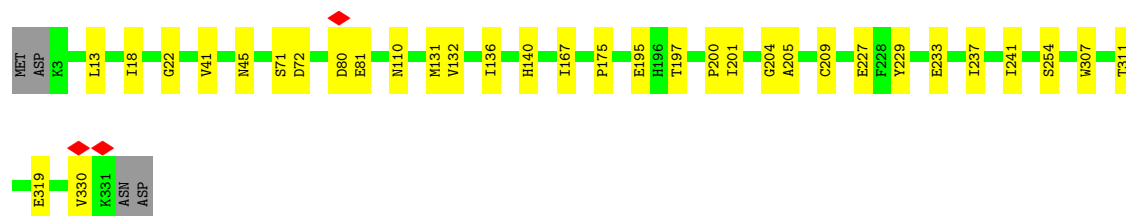
- Molecule 1: Putative ketol-acid reductoisomerase 2





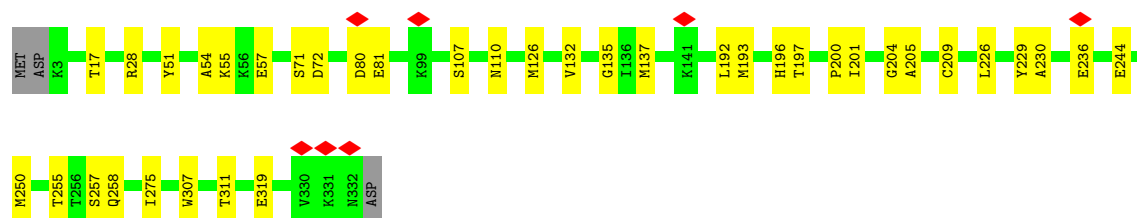
- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain E: 89% 10%



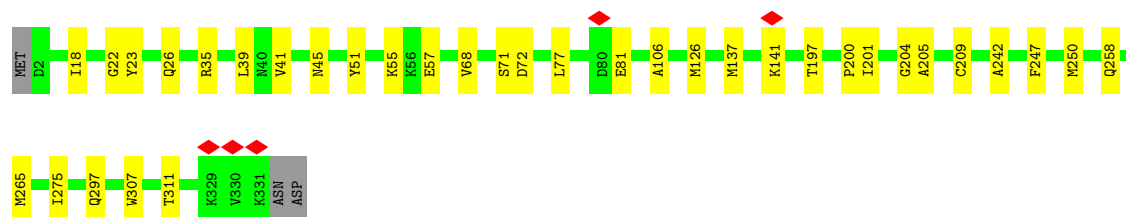
- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain F: 88% 11%



- Molecule 1: Putative ketol-acid reductoisomerase 2

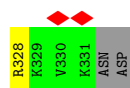
Chain G: 89% 11%



- Molecule 1: Putative ketol-acid reductoisomerase 2

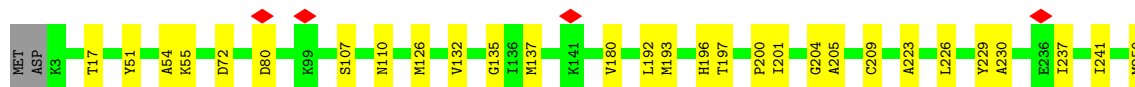
Chain H: 89% 9%





- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain I: 89% 10%



- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain J: 88% 11%



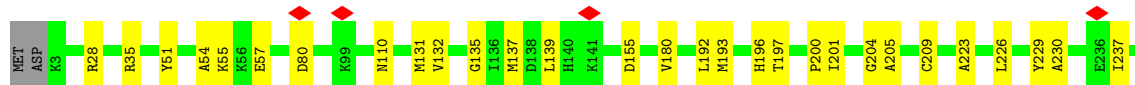
- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain K: 90% 9%



- Molecule 1: Putative ketol-acid reductoisomerase 2

Chain L: 88% 11%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	35117	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	1.4	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	8.523	Depositor
Minimum map value	-2.972	Depositor
Average map value	-0.005	Depositor
Map value standard deviation	0.395	Depositor
Recommended contour level	1.8	Depositor
Map size ($\text{\AA}$)	316.68, 316.68, 316.68	wwPDB
Map dimensions	364, 364, 364	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.87, 0.87, 0.87	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NDP, MG, 9TY

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	0.24	1/2649 (0.0%)	0.43	0/3576
1	B	0.21	0/2649	0.42	0/3576
1	C	0.22	0/2657	0.42	0/3587
1	D	0.22	0/2649	0.43	0/3576
1	E	0.22	0/2641	0.42	0/3565
1	F	0.21	0/2649	0.41	0/3576
1	G	0.23	0/2649	0.43	0/3576
1	H	0.22	0/2641	0.43	0/3565
1	I	0.21	0/2649	0.42	0/3576
1	J	0.22	0/2649	0.42	0/3576
1	K	0.21	0/2649	0.42	0/3576
1	L	0.22	0/2649	0.42	0/3576
All	All	0.22	1/31780 (0.0%)	0.42	0/42901

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	44	GLY	C-N	-5.82	1.26	1.33

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2596	2628	2628	20	0
1	B	2596	2628	2628	18	0
1	C	2604	2632	2632	22	0
1	D	2596	2628	2628	17	0
1	E	2588	2622	2622	23	0
1	F	2596	2628	2628	25	0
1	G	2596	2625	2625	29	0
1	H	2588	2622	2622	20	0
1	I	2596	2628	2628	20	0
1	J	2596	2628	2628	22	0
1	K	2596	2628	2628	18	0
1	L	2596	2628	2628	22	0
2	A	3	0	0	0	0
2	B	1	0	0	0	0
2	C	3	0	0	0	0
2	D	1	0	0	0	0
2	E	2	0	0	0	0
2	F	2	0	0	0	0
2	G	2	0	0	0	0
2	H	2	0	0	0	0
2	I	2	0	0	0	0
2	J	2	0	0	0	0
2	K	2	0	0	0	0
2	L	2	0	0	0	0
3	A	48	26	26	0	0
3	B	48	26	26	0	0
3	C	48	26	26	2	0
3	D	48	26	26	0	0
3	E	48	26	26	2	0
3	F	48	26	26	2	0
3	G	48	26	26	7	0
3	H	48	26	26	2	0
3	I	48	26	26	2	0
3	J	48	26	26	2	0
3	K	48	26	26	0	0
3	L	48	26	26	2	0
4	A	9	4	0	0	0
4	B	9	4	0	0	0
4	C	9	4	0	0	0
4	D	9	4	0	0	0
4	E	9	4	0	0	0
4	F	9	4	0	0	0
4	G	9	4	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	H	9	4	0	0	0
4	I	9	4	0	0	0
4	J	9	4	0	0	0
4	K	9	4	0	0	0
4	L	9	4	0	0	0
5	A	8	0	0	0	0
5	B	8	0	0	0	0
5	C	6	0	0	0	0
5	D	9	0	0	0	0
5	E	8	0	0	1	0
5	F	9	0	0	0	0
5	G	5	0	0	0	0
5	H	7	0	0	0	0
5	I	10	0	0	0	0
5	J	7	0	0	0	0
5	K	9	0	0	0	0
5	L	13	0	0	0	0
All	All	31951	31885	31837	254	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 (254) 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:G:26:GLN:CB	3:G:402:NDP:H4D	1.80	1.09
1:G:26:GLN:HB2	3:G:402:NDP:C4D	1.84	1.06
1:G:26:GLN:HG2	1:G:77:LEU:HD22	1.46	0.97
1:G:26:GLN:HB2	3:G:402:NDP:H4D	0.97	0.94
1:G:22:GLY:HA2	1:G:45:ASN:HD21	1.44	0.81
1:E:22:GLY:HA2	1:E:45:ASN:HD21	1.46	0.80
1:E:195:GLU:OE2	1:F:257:SER:OG	1.99	0.80
1:G:26:GLN:CG	1:G:77:LEU:HD22	2.14	0.77
3:J:403:NDP:O1X	3:J:403:NDP:O3B	2.02	0.77
3:H:403:NDP:O1X	3:H:403:NDP:O3B	2.01	0.77
3:C:402:NDP:O1X	3:C:402:NDP:O3B	2.03	0.74
1:E:307:TRP:O	1:E:311:THR:OG1	2.06	0.74
1:H:307:TRP:O	1:H:311:THR:OG1	2.03	0.74
3:F:403:NDP:O1X	3:F:403:NDP:O3B	2.06	0.72
1:C:307:TRP:O	1:C:311:THR:OG1	2.06	0.72
3:L:404:NDP:O1X	3:L:404:NDP:O3B	2.06	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:81:GLU:OE2	1:D:255:THR:OG1	2.07	0.72
1:C:16:LYS:NZ	1:C:163:TYR:OH	2.24	0.70
1:E:81:GLU:OE2	1:F:255:THR:OG1	2.08	0.70
1:C:254:SER:OG	1:D:81:GLU:OE1	2.10	0.70
1:G:307:TRP:O	1:G:311:THR:OG1	2.08	0.68
1:G:137:MET:SD	1:G:141:LYS:NZ	2.69	0.66
1:A:81:GLU:OE1	1:B:254:SER:OG	2.14	0.66
1:E:80:ASP:O	1:E:110:ASN:ND2	2.28	0.66
1:J:23:TYR:OH	1:J:57:GLU:OE1	2.13	0.66
1:E:254:SER:OG	1:F:81:GLU:OE1	2.14	0.65
1:G:51:TYR:O	1:G:55:LYS:N	2.29	0.65
3:E:402:NDP:O1X	3:E:402:NDP:O3B	2.10	0.65
1:D:307:TRP:O	1:D:311:THR:OG1	2.12	0.64
1:H:22:GLY:HA2	1:H:45:ASN:HD21	1.63	0.63
1:H:48:ASP:CG	1:H:49:LYS:H	2.07	0.63
1:J:192:LEU:O	1:J:196:HIS:ND1	2.31	0.63
1:C:320:LYS:NZ	1:C:333:ASP:O	2.30	0.62
3:I:402:NDP:O1X	3:I:402:NDP:O3B	2.12	0.62
1:L:307:TRP:O	1:L:311:THR:OG1	2.15	0.62
1:E:136:ILE:O	1:E:140:HIS:N	2.32	0.61
3:G:402:NDP:O1X	3:G:402:NDP:O3B	2.13	0.61
1:H:80:ASP:O	1:H:110:ASN:ND2	2.32	0.60
1:C:22:GLY:CA	1:C:45:ASN:HD21	2.14	0.60
1:D:17:THR:N	1:D:72:ASP:OD2	2.35	0.60
1:E:131:MET:SD	1:E:132:VAL:N	2.75	0.60
1:A:192:LEU:O	1:A:196:HIS:ND1	2.30	0.59
1:J:307:TRP:O	1:J:311:THR:OG1	2.21	0.59
1:C:22:GLY:HA2	1:C:45:ASN:HD21	1.67	0.59
1:D:192:LEU:O	1:D:196:HIS:ND1	2.29	0.59
1:G:297:GLN:NE2	1:J:297:GLN:O	2.36	0.59
1:I:17:THR:N	1:I:72:ASP:OD2	2.35	0.59
1:K:17:THR:N	1:K:72:ASP:OD2	2.36	0.59
1:F:307:TRP:O	1:F:311:THR:OG1	2.20	0.58
1:C:131:MET:HE3	1:C:132:VAL:HG12	1.84	0.58
1:F:192:LEU:O	1:F:196:HIS:ND1	2.32	0.58
1:G:22:GLY:CA	1:G:45:ASN:HD21	2.16	0.58
1:A:254:SER:OG	1:B:81:GLU:OE1	2.21	0.58
1:E:175:PRO:HD2	5:E:504:HOH:O	2.04	0.57
1:L:192:LEU:O	1:L:196:HIS:ND1	2.30	0.57
1:F:197:THR:O	1:F:201:ILE:HD12	2.05	0.57
1:E:22:GLY:CA	1:E:45:ASN:HD21	2.15	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:197:THR:O	1:I:201:ILE:HD12	2.05	0.57
1:G:242:ALA:O	1:H:328:ARG:NH1	2.38	0.57
1:L:197:THR:O	1:L:201:ILE:HD12	2.05	0.57
1:D:193:MET:O	1:D:197:THR:OG1	2.20	0.56
1:G:197:THR:O	1:G:201:ILE:HD12	2.05	0.56
1:J:17:THR:N	1:J:72:ASP:OD2	2.38	0.56
1:C:197:THR:O	1:C:201:ILE:HD12	2.05	0.56
1:B:197:THR:O	1:B:201:ILE:HD12	2.05	0.56
1:C:23:TYR:OH	1:C:57:GLU:OE1	2.24	0.56
1:A:197:THR:O	1:A:201:ILE:HD12	2.05	0.56
1:D:197:THR:O	1:D:201:ILE:HD12	2.06	0.56
1:C:18:ILE:HB	1:C:41:VAL:HG22	1.88	0.55
1:E:227:GLU:O	1:E:233:GLU:OE1	2.24	0.55
1:H:229:TYR:OH	1:H:319:GLU:OE1	2.21	0.55
1:K:197:THR:O	1:K:201:ILE:HD12	2.05	0.55
1:B:226:LEU:HA	1:B:230:ALA:HB3	1.88	0.55
1:I:250:MET:O	1:I:258:GLN:NE2	2.38	0.55
1:A:226:LEU:HA	1:A:230:ALA:HB3	1.88	0.55
1:I:226:LEU:HA	1:I:230:ALA:HB3	1.89	0.55
1:K:226:LEU:HA	1:K:230:ALA:HB3	1.88	0.55
1:H:22:GLY:CA	1:H:45:ASN:HD21	2.20	0.55
1:B:307:TRP:O	1:B:311:THR:OG1	2.24	0.55
1:E:197:THR:O	1:E:201:ILE:HD12	2.05	0.55
1:L:226:LEU:HA	1:L:230:ALA:HB3	1.89	0.54
1:D:226:LEU:HA	1:D:230:ALA:HB3	1.88	0.54
1:E:22:GLY:HA2	1:E:45:ASN:ND2	2.20	0.54
1:E:200:PRO:O	1:E:204:GLY:N	2.40	0.54
1:G:23:TYR:OH	1:G:57:GLU:OE1	2.11	0.54
1:H:131:MET:HE2	1:H:139:LEU:HD22	1.88	0.54
1:J:226:LEU:HA	1:J:230:ALA:HB3	1.88	0.54
1:A:28:ARG:NH2	1:A:57:GLU:OE2	2.40	0.54
1:K:250:MET:O	1:K:258:GLN:NE2	2.41	0.54
1:D:200:PRO:O	1:D:204:GLY:N	2.41	0.54
1:F:17:THR:N	1:F:72:ASP:OD2	2.41	0.54
1:F:226:LEU:HA	1:F:230:ALA:HB3	1.89	0.54
1:K:28:ARG:NH2	1:K:57:GLU:OE2	2.40	0.54
1:K:200:PRO:O	1:K:204:GLY:N	2.41	0.54
1:F:200:PRO:O	1:F:204:GLY:N	2.41	0.53
1:K:80:ASP:O	1:K:110:ASN:ND2	2.41	0.53
1:C:229:TYR:OH	1:C:319:GLU:OE1	2.26	0.53
1:J:200:PRO:O	1:J:204:GLY:N	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:80:ASP:O	1:D:110:ASN:ND2	2.42	0.53
1:F:80:ASP:O	1:F:110:ASN:ND2	2.42	0.53
1:B:200:PRO:O	1:B:204:GLY:N	2.41	0.53
1:H:250:MET:O	1:H:258:GLN:NE2	2.40	0.52
1:A:80:ASP:O	1:A:110:ASN:ND2	2.42	0.52
1:A:200:PRO:O	1:A:204:GLY:N	2.41	0.52
1:C:51:TYR:O	1:C:55:LYS:N	2.41	0.52
1:I:200:PRO:O	1:I:204:GLY:N	2.41	0.52
1:L:200:PRO:O	1:L:204:GLY:N	2.42	0.52
1:C:206:ILE:HG22	1:C:315:MET:HE1	1.91	0.52
1:F:250:MET:O	1:F:258:GLN:NE2	2.43	0.52
1:L:80:ASP:O	1:L:110:ASN:ND2	2.42	0.52
1:E:132:VAL:HG22	1:F:236:GLU:HG3	1.92	0.52
1:F:193:MET:O	1:F:197:THR:OG1	2.24	0.51
1:J:80:ASP:O	1:J:110:ASN:ND2	2.43	0.51
1:B:80:ASP:O	1:B:110:ASN:ND2	2.44	0.51
1:K:307:TRP:O	1:K:311:THR:OG1	2.24	0.51
1:I:80:ASP:O	1:I:110:ASN:ND2	2.43	0.51
1:A:193:MET:O	1:A:197:THR:OG1	2.22	0.51
1:E:237:ILE:HG22	1:E:241:ILE:HD12	1.92	0.51
1:I:192:LEU:O	1:I:196:HIS:ND1	2.35	0.51
1:G:26:GLN:NE2	3:G:402:NDP:O4D	2.43	0.50
1:A:307:TRP:O	1:A:311:THR:OG1	2.26	0.50
1:H:39:LEU:O	1:H:41:VAL:HG23	2.11	0.50
1:C:250:MET:O	1:C:258:GLN:NE2	2.44	0.50
1:G:71:SER:OG	1:G:72:ASP:N	2.44	0.50
1:K:205:ALA:O	1:K:209:CYS:N	2.45	0.50
1:H:23:TYR:OH	1:H:57:GLU:OE1	2.14	0.50
1:D:250:MET:O	1:D:258:GLN:NE2	2.45	0.49
1:E:71:SER:OG	1:E:72:ASP:N	2.45	0.49
1:H:126:MET:HE1	1:H:187:GLU:CB	2.42	0.49
1:I:307:TRP:O	1:I:311:THR:OG1	2.28	0.49
1:J:197:THR:O	1:J:201:ILE:HD12	2.12	0.49
1:F:71:SER:OG	1:F:72:ASP:N	2.46	0.49
1:J:205:ALA:O	1:J:209:CYS:N	2.45	0.49
1:J:237:ILE:HG22	1:J:241:ILE:HD12	1.95	0.48
1:G:200:PRO:O	1:G:204:GLY:N	2.42	0.48
1:H:205:ALA:O	1:H:209:CYS:N	2.45	0.48
1:G:205:ALA:O	1:G:209:CYS:N	2.45	0.48
1:D:205:ALA:O	1:D:209:CYS:N	2.47	0.48
1:C:44:GLY:O	1:C:45:ASN:CG	2.57	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:237:ILE:HG22	1:I:241:ILE:HD12	1.95	0.47
1:J:71:SER:OG	1:J:72:ASP:N	2.46	0.47
1:F:205:ALA:O	1:F:209:CYS:N	2.45	0.47
1:L:205:ALA:O	1:L:209:CYS:N	2.46	0.47
1:B:192:LEU:O	1:B:196:HIS:ND1	2.40	0.47
1:H:48:ASP:CG	1:H:49:LYS:N	2.73	0.47
1:K:201:ILE:HD11	1:K:275:ILE:HG21	1.97	0.47
1:L:237:ILE:HG22	1:L:241:ILE:HD12	1.97	0.47
1:C:136:ILE:O	1:C:140:HIS:N	2.43	0.47
1:G:35:ARG:NH2	1:G:57:GLU:O	2.44	0.47
1:G:201:ILE:HD11	1:G:275:ILE:HG21	1.97	0.47
1:H:200:PRO:O	1:H:204:GLY:N	2.44	0.47
1:H:197:THR:O	1:H:201:ILE:HD12	2.15	0.47
1:B:237:ILE:HG22	1:B:241:ILE:HD12	1.97	0.46
1:E:205:ALA:O	1:E:209:CYS:N	2.44	0.46
1:I:193:MET:O	1:I:197:THR:OG1	2.25	0.46
1:J:51:TYR:O	1:J:55:LYS:N	2.48	0.46
1:J:201:ILE:HD11	1:J:275:ILE:HG21	1.97	0.46
1:B:51:TYR:O	1:B:55:LYS:N	2.48	0.46
1:H:17:THR:O	1:H:71:SER:OG	2.33	0.46
1:A:205:ALA:O	1:A:209:CYS:N	2.45	0.46
1:B:205:ALA:O	1:B:209:CYS:N	2.45	0.46
1:J:250:MET:O	1:J:258:GLN:NE2	2.49	0.46
1:L:250:MET:O	1:L:258:GLN:NE2	2.49	0.46
1:B:201:ILE:HD11	1:B:275:ILE:HG21	1.96	0.46
1:A:201:ILE:HD11	1:A:275:ILE:HG21	1.97	0.46
1:A:237:ILE:HG22	1:A:241:ILE:HD12	1.98	0.46
1:I:201:ILE:HD11	1:I:275:ILE:HG21	1.96	0.46
1:F:201:ILE:HD11	1:F:275:ILE:HG21	1.97	0.46
1:G:22:GLY:HA2	1:G:45:ASN:ND2	2.23	0.46
1:A:5:VAL:HG21	1:A:181:ILE:HD11	1.97	0.45
1:I:205:ALA:O	1:I:209:CYS:N	2.46	0.45
1:F:229:TYR:OH	1:F:319:GLU:OE1	2.28	0.45
1:B:229:TYR:OH	1:B:319:GLU:OE1	2.32	0.45
1:E:229:TYR:OH	1:E:319:GLU:OE1	2.30	0.45
1:G:81:GLU:N	1:G:81:GLU:OE1	2.48	0.45
1:L:28:ARG:NH2	1:L:57:GLU:OE2	2.49	0.45
1:G:250:MET:O	1:G:258:GLN:NE2	2.50	0.45
1:H:35:ARG:NH1	1:H:57:GLU:O	2.44	0.45
1:L:201:ILE:HD11	1:L:275:ILE:HG21	1.98	0.45
1:J:131:MET:HE2	1:J:139:LEU:HD22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:51:TYR:O	1:L:54:ALA:N	2.50	0.45
3:C:402:NDP:O3X	3:C:402:NDP:H1B	2.17	0.44
1:L:51:TYR:O	1:L:55:LYS:N	2.48	0.44
3:F:403:NDP:O3X	3:F:403:NDP:H1B	2.17	0.44
1:A:51:TYR:O	1:A:55:LYS:N	2.49	0.44
1:D:51:TYR:O	1:D:55:LYS:N	2.50	0.44
1:B:17:THR:N	1:B:72:ASP:OD2	2.46	0.44
1:E:18:ILE:HB	1:E:41:VAL:HG22	2.00	0.44
1:L:193:MET:O	1:L:197:THR:OG1	2.20	0.44
1:C:200:PRO:O	1:C:204:GLY:N	2.43	0.43
1:F:51:TYR:O	1:F:54:ALA:N	2.51	0.43
1:G:68:VAL:HG12	1:G:68:VAL:O	2.17	0.43
1:D:201:ILE:HD11	1:D:275:ILE:HG21	2.00	0.43
1:H:81:GLU:OE1	1:H:81:GLU:N	2.51	0.43
1:L:229:TYR:OH	1:L:319:GLU:OE1	2.32	0.43
1:A:229:TYR:OH	1:A:319:GLU:OE1	2.33	0.43
1:C:205:ALA:O	1:C:209:CYS:N	2.50	0.43
1:H:17:THR:C	1:H:71:SER:HG	2.26	0.43
1:I:51:TYR:O	1:I:55:LYS:N	2.51	0.43
1:G:39:LEU:O	1:G:41:VAL:HG23	2.17	0.43
1:I:229:TYR:OH	1:I:319:GLU:OE1	2.32	0.43
1:K:51:TYR:O	1:K:55:LYS:N	2.50	0.43
1:K:107:SER:CA	1:K:126:MET:HE1	2.49	0.43
1:A:137:MET:HE2	1:A:137:MET:HA	2.00	0.43
3:G:402:NDP:O3X	3:G:402:NDP:H1B	2.18	0.43
1:I:51:TYR:O	1:I:54:ALA:N	2.51	0.43
1:I:107:SER:CA	1:I:126:MET:HE1	2.49	0.43
1:E:13:LEU:HD11	1:E:167:ILE:HG13	2.00	0.42
3:J:403:NDP:O3X	3:J:403:NDP:H1B	2.18	0.42
1:B:107:SER:CA	1:B:126:MET:HE1	2.49	0.42
1:B:137:MET:HE2	1:B:137:MET:HA	2.01	0.42
1:K:229:TYR:OH	1:K:319:GLU:OE1	2.34	0.42
1:L:132:VAL:HG23	1:L:135:GLY:H	1.84	0.42
3:L:404:NDP:O3X	3:L:404:NDP:H1B	2.19	0.42
1:E:330:VAL:HG13	1:F:244:GLU:O	2.19	0.42
1:G:26:GLN:N	3:G:402:NDP:O5D	2.52	0.42
3:I:402:NDP:O3X	3:I:402:NDP:H1B	2.19	0.42
1:G:18:ILE:HB	1:G:41:VAL:HG22	2.00	0.42
1:K:132:VAL:HG23	1:K:135:GLY:H	1.84	0.42
1:G:106:ALA:C	1:G:126:MET:HE1	2.45	0.42
3:H:403:NDP:O3X	3:H:403:NDP:H1B	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:51:TYR:O	1:J:54:ALA:N	2.51	0.42
1:K:35:ARG:NH2	1:K:57:GLU:O	2.49	0.42
1:F:51:TYR:O	1:F:55:LYS:N	2.51	0.42
1:L:137:MET:HE2	1:L:137:MET:HA	2.02	0.42
1:D:229:TYR:OH	1:D:319:GLU:OE1	2.32	0.42
1:F:28:ARG:NH2	1:F:57:GLU:OE2	2.53	0.42
1:E:195:GLU:CD	1:F:257:SER:OG	2.62	0.42
1:I:132:VAL:HG23	1:I:135:GLY:H	1.85	0.42
1:A:107:SER:CA	1:A:126:MET:HE1	2.50	0.41
1:L:131:MET:HE2	1:L:139:LEU:HD22	2.02	0.41
1:L:35:ARG:NH2	1:L:57:GLU:O	2.51	0.41
1:A:250:MET:O	1:A:258:GLN:NE2	2.53	0.41
1:J:132:VAL:HG23	1:J:135:GLY:H	1.86	0.41
1:K:180:VAL:HG11	1:L:223:ALA:HB2	2.02	0.41
1:K:223:ALA:HB2	1:L:180:VAL:HG11	2.02	0.41
1:F:107:SER:CA	1:F:126:MET:HE1	2.50	0.41
1:B:51:TYR:O	1:B:54:ALA:N	2.54	0.41
1:C:22:GLY:HA2	1:C:45:ASN:ND2	2.35	0.41
1:I:137:MET:HA	1:I:137:MET:HE2	2.03	0.41
1:I:180:VAL:HG11	1:J:223:ALA:HB2	2.02	0.41
1:I:223:ALA:HB2	1:J:180:VAL:HG11	2.03	0.41
1:C:223:ALA:HB2	1:D:180:VAL:HG11	2.03	0.41
1:L:155:ASP:N	1:L:155:ASP:OD1	2.54	0.41
1:C:279:GLU:O	1:C:283:ILE:HD12	2.22	0.40
1:J:137:MET:HE2	1:J:137:MET:HA	2.02	0.40
1:K:137:MET:HA	1:K:137:MET:HE2	2.04	0.40
1:A:223:ALA:HB2	1:B:180:VAL:HG11	2.02	0.40
3:E:402:NDP:O3X	3:E:402:NDP:H1B	2.21	0.40
1:D:107:SER:CA	1:D:126:MET:HE1	2.52	0.40
1:J:229:TYR:OH	1:J:319:GLU:OE1	2.33	0.40
1:F:137:MET:HE2	1:F:137:MET:HA	2.03	0.40
1:G:247:PHE:HE1	1:G:265:MET:HE1	1.86	0.40
1:F:132:VAL:HG23	1:F:135:GLY:H	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	328/333 (98%)	306 (93%)	22 (7%)	0	100	100
1	B	328/333 (98%)	306 (93%)	22 (7%)	0	100	100
1	C	329/333 (99%)	308 (94%)	21 (6%)	0	100	100
1	D	328/333 (98%)	308 (94%)	20 (6%)	0	100	100
1	E	327/333 (98%)	306 (94%)	21 (6%)	0	100	100
1	F	328/333 (98%)	305 (93%)	23 (7%)	0	100	100
1	G	328/333 (98%)	304 (93%)	24 (7%)	0	100	100
1	H	327/333 (98%)	302 (92%)	25 (8%)	0	100	100
1	I	328/333 (98%)	306 (93%)	22 (7%)	0	100	100
1	J	328/333 (98%)	304 (93%)	24 (7%)	0	100	100
1	K	328/333 (98%)	307 (94%)	21 (6%)	0	100	100
1	L	328/333 (98%)	307 (94%)	21 (6%)	0	100	100
All	All	3935/3996 (98%)	3669 (93%)	266 (7%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	269/272 (99%)	269 (100%)	0	100	100
1	B	269/272 (99%)	269 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	270/272 (99%)	270 (100%)	0	100	100
1	D	269/272 (99%)	269 (100%)	0	100	100
1	E	268/272 (98%)	268 (100%)	0	100	100
1	F	269/272 (99%)	269 (100%)	0	100	100
1	G	269/272 (99%)	269 (100%)	0	100	100
1	H	268/272 (98%)	268 (100%)	0	100	100
1	I	269/272 (99%)	269 (100%)	0	100	100
1	J	269/272 (99%)	269 (100%)	0	100	100
1	K	269/272 (99%)	269 (100%)	0	100	100
1	L	269/272 (99%)	269 (100%)	0	100	100
All	All	3227/3264 (99%)	3227 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	142	GLN
1	A	252	HIS
1	A	253	HIS
1	B	142	GLN
1	B	249	GLN
1	C	45	ASN
1	C	258	GLN
1	C	332	ASN
1	D	142	GLN
1	D	258	GLN
1	E	45	ASN
1	E	248	ASN
1	F	249	GLN
1	G	45	ASN
1	H	45	ASN
1	I	252	HIS
1	J	142	GLN
1	J	252	HIS
1	J	297	GLN
1	K	252	HIS
1	L	142	GLN

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Mol	Chain	Res	Type
1	L	252	HIS

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 48 ligands modelled in this entry, 24 are monoatomic - leaving 24 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	9TY	H	404	2	9,9,9	1.06	0	13,14,14	1.42	1 (7%)
4	9TY	K	403	2	9,9,9	1.05	0	13,14,14	1.46	2 (15%)
3	NDP	C	402	-	51,52,52	2.75	8 (15%)	71,80,80	1.38	13 (18%)
3	NDP	K	402	-	51,52,52	2.39	7 (13%)	71,80,80	1.48	14 (19%)
3	NDP	B	402	-	51,52,52	2.46	7 (13%)	71,80,80	1.47	14 (19%)
4	9TY	F	404	2	9,9,9	1.06	0	13,14,14	1.50	2 (15%)
3	NDP	J	403	-	51,52,52	2.73	8 (15%)	71,80,80	1.36	10 (14%)
3	NDP	D	402	-	51,52,52	2.39	8 (15%)	71,80,80	1.47	14 (19%)
3	NDP	I	402	-	51,52,52	2.69	7 (13%)	71,80,80	1.38	12 (16%)
4	9TY	C	403	2	9,9,9	1.05	0	13,14,14	1.45	1 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NDP	F	403	-	51,52,52	2.79	10 (19%)	71,80,80	1.40	12 (16%)
3	NDP	E	402	-	51,52,52	2.78	7 (13%)	71,80,80	1.39	13 (18%)
4	9TY	A	404	2	9,9,9	1.07	0	13,14,14	1.45	2 (15%)
3	NDP	L	404	-	51,52,52	2.73	7 (13%)	71,80,80	1.38	12 (16%)
4	9TY	I	403	2	9,9,9	1.05	0	13,14,14	1.43	1 (7%)
4	9TY	D	403	2	9,9,9	1.07	0	13,14,14	1.46	2 (15%)
4	9TY	J	404	2	9,9,9	1.06	0	13,14,14	1.44	1 (7%)
4	9TY	G	403	2	9,9,9	1.07	0	13,14,14	1.44	1 (7%)
3	NDP	A	403	-	51,52,52	2.53	10 (19%)	71,80,80	1.48	14 (19%)
4	9TY	B	403	2	9,9,9	1.06	0	13,14,14	1.42	1 (7%)
3	NDP	H	403	-	51,52,52	2.74	7 (13%)	71,80,80	1.38	10 (14%)
4	9TY	E	403	2	9,9,9	1.05	0	13,14,14	1.44	1 (7%)
3	NDP	G	402	-	51,52,52	2.85	11 (21%)	71,80,80	1.52	16 (22%)
4	9TY	L	401	2	9,9,9	1.07	0	13,14,14	1.43	1 (7%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	9TY	H	404	2	-	6/12/16/16	0/1/1/1
4	9TY	K	403	2	-	9/12/16/16	0/1/1/1
3	NDP	C	402	-	-	6/34/77/77	0/5/5/5
3	NDP	K	402	-	-	12/34/77/77	0/5/5/5
3	NDP	B	402	-	-	10/34/77/77	0/5/5/5
4	9TY	F	404	2	-	4/12/16/16	0/1/1/1
3	NDP	J	403	-	-	8/34/77/77	0/5/5/5
3	NDP	D	402	-	-	14/34/77/77	0/5/5/5
3	NDP	I	402	-	-	7/34/77/77	0/5/5/5
4	9TY	C	403	2	-	8/12/16/16	0/1/1/1
3	NDP	F	403	-	-	8/34/77/77	0/5/5/5
3	NDP	E	402	-	-	9/34/77/77	0/5/5/5
4	9TY	A	404	2	-	8/12/16/16	0/1/1/1
3	NDP	L	404	-	-	8/34/77/77	0/5/5/5
4	9TY	I	403	2	-	8/12/16/16	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	9TY	D	403	2	-	9/12/16/16	0/1/1/1
4	9TY	J	404	2	-	3/12/16/16	0/1/1/1
4	9TY	G	403	2	-	7/12/16/16	0/1/1/1
3	NDP	A	403	-	-	9/34/77/77	0/5/5/5
4	9TY	B	403	2	-	7/12/16/16	0/1/1/1
3	NDP	H	403	-	-	10/34/77/77	0/5/5/5
4	9TY	E	403	2	-	3/12/16/16	0/1/1/1
3	NDP	G	402	-	-	9/34/77/77	0/5/5/5
4	9TY	L	401	2	-	9/12/16/16	0/1/1/1

All (97) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	402	NDP	P2B-O2B	16.89	1.89	1.59
3	E	402	NDP	P2B-O2B	16.67	1.88	1.59
3	C	402	NDP	P2B-O2B	16.52	1.88	1.59
3	L	404	NDP	P2B-O2B	16.39	1.88	1.59
3	F	403	NDP	P2B-O2B	16.37	1.88	1.59
3	H	403	NDP	P2B-O2B	16.32	1.88	1.59
3	J	403	NDP	P2B-O2B	16.32	1.88	1.59
3	I	402	NDP	P2B-O2B	16.10	1.87	1.59
3	A	403	NDP	P2B-O2B	14.42	1.84	1.59
3	B	402	NDP	P2B-O2B	13.97	1.84	1.59
3	K	402	NDP	P2B-O2B	13.37	1.83	1.59
3	D	402	NDP	P2B-O2B	13.29	1.82	1.59
3	F	403	NDP	PN-O5D	5.07	1.79	1.59
3	G	402	NDP	PA-O3	5.06	1.65	1.59
3	D	402	NDP	PN-O5D	5.02	1.79	1.59
3	B	402	NDP	PN-O5D	5.01	1.79	1.59
3	K	402	NDP	PN-O5D	4.98	1.78	1.59
3	F	403	NDP	PA-O3	4.96	1.64	1.59
3	L	404	NDP	PN-O5D	4.87	1.78	1.59
3	J	403	NDP	PN-O5D	4.86	1.78	1.59
3	H	403	NDP	PN-O5D	4.86	1.78	1.59
3	E	402	NDP	PN-O5D	4.82	1.78	1.59
3	I	402	NDP	PN-O5D	4.79	1.78	1.59
3	C	402	NDP	PN-O5D	4.66	1.77	1.59
3	A	403	NDP	PN-O5D	4.65	1.77	1.59
3	E	402	NDP	PA-O3	4.64	1.64	1.59
3	H	403	NDP	PA-O3	4.54	1.64	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	402	NDP	PA-O3	4.43	1.64	1.59
3	I	402	NDP	PA-O3	4.43	1.64	1.59
3	A	403	NDP	PA-O3	4.42	1.64	1.59
3	J	403	NDP	PA-O3	4.41	1.64	1.59
3	L	404	NDP	PA-O3	4.37	1.64	1.59
3	D	402	NDP	PA-O3	4.35	1.64	1.59
3	B	402	NDP	PA-O3	4.32	1.64	1.59
3	K	402	NDP	PA-O3	4.28	1.64	1.59
3	G	402	NDP	PN-O5D	4.25	1.76	1.59
3	K	402	NDP	O2B-C2B	-3.17	1.33	1.44
3	D	402	NDP	O2B-C2B	-3.17	1.33	1.44
3	B	402	NDP	O2B-C2B	-3.09	1.33	1.44
3	A	403	NDP	O2B-C2B	-3.06	1.33	1.44
3	G	402	NDP	O4D-C4D	2.98	1.51	1.45
3	E	402	NDP	C5A-C4A	2.57	1.43	1.39
3	F	403	NDP	C2D-C1D	2.53	1.61	1.53
3	J	403	NDP	C5A-C4A	2.52	1.43	1.39
3	H	403	NDP	C5A-C4A	2.52	1.43	1.39
3	C	402	NDP	C5A-C4A	2.50	1.43	1.39
3	L	404	NDP	C5A-C4A	2.48	1.43	1.39
3	G	402	NDP	C5A-C4A	2.47	1.43	1.39
3	F	403	NDP	C5A-C4A	2.46	1.43	1.39
3	I	402	NDP	C5A-C4A	2.45	1.43	1.39
3	F	403	NDP	C1D-N1N	2.43	1.53	1.46
3	D	402	NDP	C5A-C4A	2.37	1.43	1.39
3	A	403	NDP	C5A-C4A	2.37	1.43	1.39
3	B	402	NDP	C5A-C4A	2.35	1.43	1.39
3	H	403	NDP	C2A-N1A	2.35	1.38	1.33
3	K	402	NDP	C5A-C4A	2.34	1.43	1.39
3	L	404	NDP	C2A-N1A	2.33	1.38	1.33
3	J	403	NDP	C2A-N1A	2.32	1.38	1.33
3	G	402	NDP	C5D-C4D	2.32	1.58	1.51
3	C	402	NDP	C2A-N1A	2.32	1.38	1.33
3	G	402	NDP	C2A-N1A	2.31	1.38	1.33
3	E	402	NDP	C2A-N1A	2.31	1.38	1.33
3	F	403	NDP	C2A-N1A	2.30	1.38	1.33
3	I	402	NDP	C2A-N1A	2.29	1.38	1.33
3	A	403	NDP	C2D-C1D	2.26	1.60	1.53
3	D	402	NDP	C2A-N1A	2.25	1.37	1.33
3	A	403	NDP	C2A-N1A	2.25	1.37	1.33
3	B	402	NDP	C2A-N1A	2.24	1.37	1.33
3	A	403	NDP	C2B-C1B	2.22	1.58	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	K	402	NDP	C2A-N1A	2.21	1.37	1.33
3	F	403	NDP	C7N-N7N	2.20	1.39	1.33
3	A	403	NDP	C7N-N7N	2.19	1.39	1.33
3	B	402	NDP	C4A-N3A	2.14	1.38	1.34
3	J	403	NDP	C4A-N3A	2.13	1.38	1.34
3	F	403	NDP	C2B-C1B	2.13	1.58	1.53
3	L	404	NDP	C2B-C1B	2.13	1.58	1.53
3	E	402	NDP	C4A-N3A	2.13	1.38	1.34
3	F	403	NDP	C4A-N3A	2.12	1.38	1.34
3	H	403	NDP	C4A-N3A	2.12	1.38	1.34
3	A	403	NDP	C4A-N3A	2.11	1.38	1.34
3	G	402	NDP	C2B-C1B	2.10	1.58	1.53
3	H	403	NDP	C2B-C1B	2.10	1.58	1.53
3	K	402	NDP	C4A-N3A	2.09	1.38	1.34
3	C	402	NDP	C2B-C1B	2.09	1.58	1.53
3	E	402	NDP	C2D-C1D	2.09	1.60	1.53
3	J	403	NDP	C2B-C1B	2.08	1.58	1.53
3	I	402	NDP	C4A-N3A	2.07	1.38	1.34
3	G	402	NDP	C4A-N3A	2.07	1.38	1.34
3	L	404	NDP	C4A-N3A	2.07	1.38	1.34
3	C	402	NDP	C4A-N3A	2.07	1.38	1.34
3	D	402	NDP	C4A-N3A	2.05	1.38	1.34
3	G	402	NDP	C3D-C4D	2.02	1.58	1.53
3	I	402	NDP	C2B-C1B	2.02	1.58	1.53
3	G	402	NDP	C7N-N7N	2.02	1.39	1.33
3	J	403	NDP	C7N-N7N	2.01	1.39	1.33
3	C	402	NDP	C7N-N7N	2.00	1.39	1.33
3	D	402	NDP	C7N-N7N	2.00	1.39	1.33

All (170) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	K	402	NDP	P2B-O2B-C2B	-4.63	111.06	123.43
3	D	402	NDP	P2B-O2B-C2B	-4.61	111.13	123.43
3	B	402	NDP	P2B-O2B-C2B	-4.15	112.34	123.43
3	A	403	NDP	P2B-O2B-C2B	-4.05	112.60	123.43
3	I	402	NDP	O3-PA-O1A	-3.65	99.73	110.70
3	K	402	NDP	O3-PA-O1A	-3.63	99.78	110.70
3	L	404	NDP	O3-PA-O1A	-3.63	99.80	110.70
3	H	403	NDP	O3-PA-O1A	-3.60	99.88	110.70
3	B	402	NDP	O2B-P2B-O1X	-3.60	96.51	109.33
3	J	403	NDP	O3-PA-O1A	-3.58	99.92	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	402	NDP	O2B-P2B-O1X	-3.58	96.57	109.33
3	K	402	NDP	O2B-P2B-O1X	-3.58	96.57	109.33
3	B	402	NDP	O3-PA-O1A	-3.58	99.95	110.70
3	C	402	NDP	O3-PA-O1A	-3.57	99.98	110.70
3	D	402	NDP	O3-PA-O1A	-3.56	99.99	110.70
3	F	403	NDP	O3-PA-O1A	-3.53	100.08	110.70
3	G	402	NDP	O2B-P2B-O1X	-3.47	96.95	109.33
3	A	403	NDP	O2B-P2B-O1X	-3.46	97.02	109.33
3	A	403	NDP	O3-PA-O1A	-3.39	100.51	110.70
3	E	402	NDP	O2B-P2B-O1X	-3.35	97.41	109.33
3	I	402	NDP	O2B-P2B-O1X	-3.34	97.44	109.33
3	F	403	NDP	O2B-P2B-O1X	-3.28	97.65	109.33
3	H	403	NDP	O2B-P2B-O1X	-3.25	97.73	109.33
3	L	404	NDP	O2B-P2B-O1X	-3.24	97.78	109.33
3	G	402	NDP	O4D-C4D-C3D	-3.23	98.73	105.15
3	C	402	NDP	O2B-P2B-O1X	-3.23	97.81	109.33
3	E	402	NDP	O3-PA-O1A	-3.23	101.00	110.70
3	J	403	NDP	O2B-P2B-O1X	-3.09	98.33	109.33
3	G	402	NDP	PA-O5B-C5B	-3.06	103.80	121.35
3	C	402	NDP	PA-O5B-C5B	-3.00	104.17	121.35
3	G	402	NDP	O3-PA-O1A	-2.97	101.78	110.70
4	F	404	9TY	C08-C03-C07	2.96	60.02	57.45
3	H	403	NDP	PA-O5B-C5B	-2.93	104.57	121.35
4	A	404	9TY	C08-C03-C07	2.92	59.98	57.45
4	D	403	9TY	C08-C03-C07	2.92	59.98	57.45
4	G	403	9TY	C08-C03-C07	2.92	59.98	57.45
4	L	401	9TY	C08-C03-C07	2.91	59.97	57.45
3	I	402	NDP	PA-O5B-C5B	-2.91	104.67	121.35
4	C	403	9TY	C08-C03-C07	2.91	59.97	57.45
3	L	404	NDP	PA-O5B-C5B	-2.90	104.71	121.35
4	E	403	9TY	C08-C03-C07	2.90	59.97	57.45
3	F	403	NDP	PA-O5B-C5B	-2.90	104.76	121.35
3	J	403	NDP	PA-O5B-C5B	-2.89	104.80	121.35
4	K	403	9TY	C08-C03-C07	2.88	59.95	57.45
4	H	404	9TY	C08-C03-C07	2.87	59.93	57.45
4	J	404	9TY	C08-C03-C07	2.87	59.93	57.45
4	I	403	9TY	C08-C03-C07	2.87	59.93	57.45
4	B	403	9TY	C08-C03-C07	2.84	59.91	57.45
3	G	402	NDP	O5D-PN-O1N	-2.83	97.73	108.94
3	A	403	NDP	PA-O5B-C5B	-2.81	105.23	121.35
3	B	402	NDP	C3N-C2N-N1N	-2.80	119.09	123.20
3	B	402	NDP	PA-O5B-C5B	-2.80	105.33	121.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	K	402	NDP	PA-O5B-C5B	-2.79	105.36	121.35
3	D	402	NDP	PA-O5B-C5B	-2.79	105.36	121.35
3	E	402	NDP	PN-O5D-C5D	-2.68	105.98	121.35
3	E	402	NDP	PA-O5B-C5B	-2.64	106.23	121.35
3	G	402	NDP	O2N-PN-O3	2.59	114.27	107.27
3	J	403	NDP	N3A-C4A-N9A	2.55	131.50	127.17
3	I	402	NDP	O2N-PN-O3	2.55	114.15	107.27
3	E	402	NDP	N3A-C4A-N9A	2.53	131.48	127.17
3	D	402	NDP	O3X-P2B-O2X	2.53	117.28	107.80
3	K	402	NDP	O3X-P2B-O2X	2.53	117.28	107.80
3	B	402	NDP	O3X-P2B-O2X	2.53	117.27	107.80
3	F	403	NDP	N3A-C4A-N9A	2.52	131.45	127.17
3	A	403	NDP	O3X-P2B-O2X	2.51	117.22	107.80
3	A	403	NDP	O2N-PN-O3	2.51	114.05	107.27
3	L	404	NDP	C2A-N1A-C6A	-2.50	114.62	118.73
3	F	403	NDP	C2A-N1A-C6A	-2.50	114.62	118.73
3	G	402	NDP	C5D-C4D-C3D	-2.50	106.23	115.21
3	E	402	NDP	C2A-N1A-C6A	-2.49	114.64	118.73
3	J	403	NDP	C2A-N1A-C6A	-2.48	114.65	118.73
3	L	404	NDP	N3A-C4A-N9A	2.48	131.39	127.17
3	H	403	NDP	O2N-PN-O3	2.48	113.98	107.27
3	A	403	NDP	C2A-N1A-C6A	-2.48	114.66	118.73
3	D	402	NDP	C2A-N1A-C6A	-2.48	114.66	118.73
3	C	402	NDP	C2A-N1A-C6A	-2.48	114.66	118.73
3	B	402	NDP	C2A-N1A-C6A	-2.47	114.67	118.73
3	I	402	NDP	O3X-P2B-O2X	2.47	117.07	107.80
3	I	402	NDP	C2A-N1A-C6A	-2.47	114.67	118.73
3	I	402	NDP	N3A-C4A-N9A	2.46	131.36	127.17
3	H	403	NDP	C2A-N1A-C6A	-2.46	114.68	118.73
3	G	402	NDP	C2A-N1A-C6A	-2.46	114.68	118.73
3	L	404	NDP	O2N-PN-O3	2.45	113.91	107.27
3	A	403	NDP	N3A-C4A-N9A	2.45	131.34	127.17
3	H	403	NDP	N3A-C4A-N9A	2.45	131.34	127.17
3	K	402	NDP	C2A-N1A-C6A	-2.45	114.70	118.73
3	E	402	NDP	O3X-P2B-O2X	2.44	116.95	107.80
3	C	402	NDP	O2N-PN-O3	2.44	113.86	107.27
3	L	404	NDP	O3X-P2B-O2X	2.44	116.93	107.80
3	F	403	NDP	O3X-P2B-O2X	2.43	116.92	107.80
3	C	402	NDP	N3A-C4A-N9A	2.43	131.29	127.17
3	G	402	NDP	N3A-C4A-N9A	2.43	131.29	127.17
3	G	402	NDP	O3X-P2B-O2X	2.42	116.86	107.80
3	J	403	NDP	O2N-PN-O3	2.41	113.80	107.27

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	402	NDP	N3A-C4A-N9A	2.41	131.27	127.17
3	A	403	NDP	O7N-C7N-N7N	-2.41	117.49	122.89
3	C	402	NDP	O3X-P2B-O2X	2.41	116.83	107.80
3	J	403	NDP	O3X-P2B-O2X	2.41	116.82	107.80
3	H	403	NDP	O3X-P2B-O2X	2.39	116.77	107.80
3	C	402	NDP	PN-O5D-C5D	-2.39	107.66	121.35
3	A	403	NDP	O2N-PN-O1N	2.39	123.55	112.44
3	F	403	NDP	O7N-C7N-N7N	-2.38	117.55	122.89
3	D	402	NDP	N3A-C4A-N9A	2.38	131.22	127.17
3	E	402	NDP	O2N-PN-O3	2.38	113.71	107.27
3	K	402	NDP	N3A-C4A-N9A	2.38	131.21	127.17
3	G	402	NDP	PN-O5D-C5D	-2.37	107.75	121.35
3	F	403	NDP	O2N-PN-O3	2.34	113.61	107.27
3	G	402	NDP	C1D-N1N-C2N	2.34	124.99	121.14
3	G	402	NDP	O2N-PN-O1N	2.29	123.12	112.44
3	E	402	NDP	O2N-PN-O1N	2.28	123.06	112.44
3	E	402	NDP	C5A-C4A-N3A	-2.27	123.59	126.72
3	K	402	NDP	O2N-PN-O3	2.27	113.40	107.27
3	A	403	NDP	PN-O5D-C5D	-2.27	108.36	121.35
3	B	402	NDP	O2N-PN-O3	2.27	113.40	107.27
3	K	402	NDP	C3N-C2N-N1N	-2.27	119.88	123.20
3	C	402	NDP	O2N-PN-O1N	2.26	122.94	112.44
3	I	402	NDP	O2N-PN-O1N	2.26	122.94	112.44
3	D	402	NDP	O2N-PN-O3	2.26	113.37	107.27
3	L	404	NDP	O2N-PN-O1N	2.26	122.94	112.44
3	J	403	NDP	O2N-PN-O1N	2.25	122.93	112.44
3	C	402	NDP	O4B-C4B-C3B	2.25	109.61	105.15
3	L	404	NDP	C3N-C2N-N1N	-2.24	119.91	123.20
3	A	403	NDP	C3N-C2N-N1N	-2.24	119.92	123.20
3	J	403	NDP	C5A-C4A-N3A	-2.23	123.64	126.72
3	D	402	NDP	O2N-PN-O1N	2.22	122.79	112.44
3	F	403	NDP	O2N-PN-O1N	2.22	122.78	112.44
3	F	403	NDP	C5A-C4A-N3A	-2.22	123.66	126.72
3	E	402	NDP	C3N-C2N-N1N	-2.21	119.96	123.20
3	F	403	NDP	C1D-N1N-C2N	2.21	124.78	121.14
3	F	403	NDP	PN-O5D-C5D	-2.21	108.69	121.35
3	G	402	NDP	C5A-C4A-N3A	-2.21	123.67	126.72
3	H	403	NDP	O2N-PN-O1N	2.21	122.71	112.44
3	A	403	NDP	C5A-C4A-N3A	-2.21	123.68	126.72
3	K	402	NDP	O2N-PN-O1N	2.20	122.67	112.44
3	B	402	NDP	O2N-PN-O1N	2.20	122.66	112.44
3	G	402	NDP	C3N-C2N-N1N	-2.18	120.00	123.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	403	NDP	C5A-C4A-N3A	-2.18	123.71	126.72
3	L	404	NDP	C5A-C4A-N3A	-2.17	123.72	126.72
3	I	402	NDP	C5A-C4A-N3A	-2.17	123.73	126.72
3	B	402	NDP	C5A-C4A-N3A	-2.16	123.75	126.72
3	I	402	NDP	C3N-C2N-N1N	-2.16	120.04	123.20
3	A	403	NDP	O3X-P2B-O2B	-2.13	97.56	105.85
3	C	402	NDP	C5A-C4A-N3A	-2.12	123.79	126.72
3	D	402	NDP	C3N-C2N-N1N	-2.11	120.10	123.20
4	F	404	9TY	O09-C02-C03	2.11	120.59	114.87
3	K	402	NDP	C5A-C4A-N3A	-2.11	123.81	126.72
3	D	402	NDP	C5A-C4A-N3A	-2.10	123.82	126.72
3	E	402	NDP	O2A-PA-O1A	2.08	122.14	112.44
3	C	402	NDP	C3N-C2N-N1N	-2.08	120.15	123.20
3	H	403	NDP	PN-O5D-C5D	-2.08	109.43	121.35
3	J	403	NDP	PN-O5D-C5D	-2.08	109.43	121.35
3	D	402	NDP	O4B-C4B-C3B	2.08	109.28	105.15
3	B	402	NDP	O3X-P2B-O2B	-2.07	97.78	105.85
3	K	402	NDP	O4B-C4B-C3B	2.07	109.26	105.15
3	B	402	NDP	PN-O5D-C5D	-2.06	109.52	121.35
3	L	404	NDP	PN-O5D-C5D	-2.06	109.54	121.35
3	I	402	NDP	PN-O5D-C5D	-2.06	109.55	121.35
3	D	402	NDP	O7N-C7N-C3N	2.05	124.75	120.90
3	L	404	NDP	O7N-C7N-C3N	2.04	124.75	120.90
3	D	402	NDP	PN-O5D-C5D	-2.04	109.65	121.35
3	G	402	NDP	O7N-C7N-N7N	-2.04	118.32	122.89
3	K	402	NDP	O7N-C7N-C3N	2.04	124.74	120.90
3	K	402	NDP	PN-O5D-C5D	-2.04	109.67	121.35
4	D	403	9TY	O09-C02-C03	2.03	120.37	114.87
4	A	404	9TY	O05-C04-C03	2.03	120.37	114.87
3	C	402	NDP	O7N-C7N-C3N	2.03	124.72	120.90
3	E	402	NDP	O7N-C7N-C3N	2.02	124.71	120.90
3	I	402	NDP	O7N-C7N-C3N	2.02	124.70	120.90
3	B	402	NDP	O7N-C7N-C3N	2.01	124.69	120.90
4	K	403	9TY	O09-C02-C03	2.00	120.29	114.87

There are no chirality outliers.

All (191) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	402	NDP	C5D-O5D-PN-O3
3	B	402	NDP	C5D-O5D-PN-O1N
3	B	402	NDP	C5D-O5D-PN-O2N

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Mol	Chain	Res	Type	Atoms
3	B	402	NDP	C2N-C3N-C7N-N7N
3	C	402	NDP	C2N-C3N-C7N-N7N
3	D	402	NDP	C5D-O5D-PN-O3
3	D	402	NDP	C5D-O5D-PN-O1N
3	D	402	NDP	C5D-O5D-PN-O2N
3	D	402	NDP	C2N-C3N-C7N-N7N
3	E	402	NDP	C1B-C2B-O2B-P2B
3	E	402	NDP	O4D-C4D-C5D-O5D
3	E	402	NDP	C2N-C3N-C7N-N7N
3	F	403	NDP	C5D-O5D-PN-O1N
3	F	403	NDP	C2D-C1D-N1N-C2N
3	G	402	NDP	C1B-C2B-O2B-P2B
3	G	402	NDP	C3D-C4D-C5D-O5D
3	G	402	NDP	C2D-C1D-N1N-C2N
3	H	403	NDP	C5D-O5D-PN-O1N
3	H	403	NDP	C2N-C3N-C7N-N7N
3	I	402	NDP	C5D-O5D-PN-O3
3	I	402	NDP	C5D-O5D-PN-O1N
3	I	402	NDP	C2N-C3N-C7N-N7N
3	J	403	NDP	C5D-O5D-PN-O3
3	J	403	NDP	C5D-O5D-PN-O1N
3	J	403	NDP	C2N-C3N-C7N-N7N
3	K	402	NDP	C5D-O5D-PN-O3
3	K	402	NDP	C5D-O5D-PN-O1N
3	K	402	NDP	C5D-O5D-PN-O2N
3	K	402	NDP	C2N-C3N-C7N-N7N
3	L	404	NDP	C3B-C2B-O2B-P2B
3	L	404	NDP	C5D-O5D-PN-O3
3	L	404	NDP	C5D-O5D-PN-O1N
3	L	404	NDP	C2N-C3N-C7N-N7N
4	A	404	9TY	O01-C02-C03-C07
4	A	404	9TY	O09-C02-C03-C07
4	B	403	9TY	C02-C03-C04-O05
4	B	403	9TY	C02-C03-C04-O06
4	B	403	9TY	C07-C03-C04-O05
4	B	403	9TY	C07-C03-C04-O06
4	C	403	9TY	O01-C02-C03-C04
4	C	403	9TY	O09-C02-C03-C04
4	C	403	9TY	C02-C03-C04-O05
4	C	403	9TY	C02-C03-C04-O06
4	C	403	9TY	C07-C03-C04-O05
4	C	403	9TY	C07-C03-C04-O06

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Mol	Chain	Res	Type	Atoms
4	D	403	9TY	C02-C03-C04-O05
4	D	403	9TY	C02-C03-C04-O06
4	D	403	9TY	C07-C03-C04-O05
4	E	403	9TY	O01-C02-C03-C08
4	E	403	9TY	O09-C02-C03-C08
4	F	404	9TY	O01-C02-C03-C04
4	F	404	9TY	O01-C02-C03-C08
4	F	404	9TY	O09-C02-C03-C04
4	F	404	9TY	O09-C02-C03-C08
4	G	403	9TY	O01-C02-C03-C04
4	G	403	9TY	C02-C03-C04-O06
4	G	403	9TY	C07-C03-C04-O05
4	G	403	9TY	C07-C03-C04-O06
4	H	404	9TY	O01-C02-C03-C07
4	H	404	9TY	O09-C02-C03-C07
4	I	403	9TY	C02-C03-C04-O05
4	I	403	9TY	C02-C03-C04-O06
4	I	403	9TY	C07-C03-C04-O05
4	I	403	9TY	C07-C03-C04-O06
4	K	403	9TY	O09-C02-C03-C08
4	K	403	9TY	C02-C03-C04-O05
4	K	403	9TY	C02-C03-C04-O06
4	K	403	9TY	C07-C03-C04-O05
4	K	403	9TY	C07-C03-C04-O06
4	L	401	9TY	O01-C02-C03-C04
4	L	401	9TY	O01-C02-C03-C07
4	L	401	9TY	O01-C02-C03-C08
4	L	401	9TY	O09-C02-C03-C07
4	L	401	9TY	O09-C02-C03-C08
4	L	401	9TY	C02-C03-C04-O05
4	L	401	9TY	C02-C03-C04-O06
4	L	401	9TY	C07-C03-C04-O05
4	L	401	9TY	C07-C03-C04-O06
3	G	402	NDP	O4D-C4D-C5D-O5D
3	C	402	NDP	C1B-C2B-O2B-P2B
3	F	403	NDP	C1B-C2B-O2B-P2B
3	H	403	NDP	C1B-C2B-O2B-P2B
3	I	402	NDP	C1B-C2B-O2B-P2B
3	J	403	NDP	C1B-C2B-O2B-P2B
3	L	404	NDP	C1B-C2B-O2B-P2B
3	E	402	NDP	C3B-C2B-O2B-P2B
3	F	403	NDP	C3B-C2B-O2B-P2B

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Mol	Chain	Res	Type	Atoms
3	G	402	NDP	C3B-C2B-O2B-P2B
3	I	402	NDP	C3B-C2B-O2B-P2B
3	F	403	NDP	C2D-C1D-N1N-C6N
3	G	402	NDP	C2D-C1D-N1N-C6N
3	A	403	NDP	O4D-C4D-C5D-O5D
3	E	402	NDP	C3D-C4D-C5D-O5D
3	C	402	NDP	C3B-C2B-O2B-P2B
3	D	402	NDP	C3B-C2B-O2B-P2B
3	H	403	NDP	C3B-C2B-O2B-P2B
3	J	403	NDP	C3B-C2B-O2B-P2B
3	K	402	NDP	C3B-C2B-O2B-P2B
3	A	403	NDP	C3D-C4D-C5D-O5D
3	C	402	NDP	O4D-C4D-C5D-O5D
3	D	402	NDP	C1B-C2B-O2B-P2B
3	K	402	NDP	C1B-C2B-O2B-P2B
3	A	403	NDP	C2D-C1D-N1N-C2N
3	F	403	NDP	O4D-C4D-C5D-O5D
3	G	402	NDP	O4B-C4B-C5B-O5B
3	A	403	NDP	C2D-C1D-N1N-C6N
3	A	403	NDP	O4D-C1D-N1N-C2N
3	B	402	NDP	O4D-C1D-N1N-C6N
3	G	402	NDP	PN-O3-PA-O1A
3	A	403	NDP	O4D-C1D-N1N-C6N
4	A	404	9TY	O01-C02-C03-C08
4	A	404	9TY	C07-C03-C04-O05
4	A	404	9TY	C07-C03-C04-O06
4	B	403	9TY	O01-C02-C03-C07
4	B	403	9TY	O09-C02-C03-C07
4	C	403	9TY	O01-C02-C03-C08
4	C	403	9TY	O09-C02-C03-C08
4	D	403	9TY	O01-C02-C03-C07
4	D	403	9TY	O01-C02-C03-C08
4	D	403	9TY	O09-C02-C03-C07
4	D	403	9TY	O09-C02-C03-C08
4	D	403	9TY	C07-C03-C04-O06
4	G	403	9TY	O01-C02-C03-C07
4	G	403	9TY	O09-C02-C03-C07
4	H	404	9TY	C07-C03-C04-O05
4	H	404	9TY	C07-C03-C04-O06
4	I	403	9TY	O01-C02-C03-C08
4	J	404	9TY	O01-C02-C03-C07
4	J	404	9TY	O09-C02-C03-C07

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Mol	Chain	Res	Type	Atoms
4	K	403	9TY	O01-C02-C03-C07
4	K	403	9TY	O01-C02-C03-C08
4	K	403	9TY	O09-C02-C03-C07
4	A	404	9TY	O01-C02-C03-C04
4	A	404	9TY	C02-C03-C04-O06
4	B	403	9TY	O01-C02-C03-C04
4	E	403	9TY	O01-C02-C03-C04
4	H	404	9TY	O01-C02-C03-C04
4	H	404	9TY	C02-C03-C04-O06
4	I	403	9TY	O01-C02-C03-C04
4	J	404	9TY	O01-C02-C03-C04
3	I	402	NDP	O4D-C1D-N1N-C6N
3	K	402	NDP	O4D-C1D-N1N-C6N
3	E	402	NDP	C5B-O5B-PA-O1A
3	F	403	NDP	C5D-O5D-PN-O2N
3	H	403	NDP	C5D-O5D-PN-O3
3	H	403	NDP	C5D-O5D-PN-O2N
3	I	402	NDP	C5D-O5D-PN-O2N
3	J	403	NDP	C5D-O5D-PN-O2N
3	L	404	NDP	C5D-O5D-PN-O2N
4	G	403	9TY	C02-C03-C04-O05
3	D	402	NDP	O4B-C4B-C5B-O5B
3	K	402	NDP	O4B-C4B-C5B-O5B
3	B	402	NDP	C2B-O2B-P2B-O2X
3	D	402	NDP	O4D-C1D-N1N-C6N
3	E	402	NDP	O4D-C1D-N1N-C6N
3	F	403	NDP	O4D-C1D-N1N-C2N
3	H	403	NDP	O4D-C1D-N1N-C6N
3	C	402	NDP	O4D-C1D-N1N-C6N
3	G	402	NDP	O4D-C1D-N1N-C2N
3	J	403	NDP	O4D-C1D-N1N-C6N
3	L	404	NDP	O4D-C1D-N1N-C6N
3	D	402	NDP	C2B-O2B-P2B-O1X
3	K	402	NDP	C2B-O2B-P2B-O1X
3	A	403	NDP	C4B-C5B-O5B-PA
3	B	402	NDP	C4B-C5B-O5B-PA
3	K	402	NDP	C4B-C5B-O5B-PA
3	C	402	NDP	C2D-C1D-N1N-C6N
3	H	403	NDP	C2D-C1D-N1N-C6N
3	E	402	NDP	C2D-C1D-N1N-C6N
3	J	403	NDP	C2D-C1D-N1N-C6N
3	B	402	NDP	O4B-C4B-C5B-O5B

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Mol	Chain	Res	Type	Atoms
3	L	404	NDP	C2D-C1D-N1N-C6N
3	D	402	NDP	C4B-C5B-O5B-PA
3	H	403	NDP	O4D-C4D-C5D-O5D
3	A	403	NDP	O4B-C4B-C5B-O5B
3	D	402	NDP	O4D-C4D-C5D-O5D
3	K	402	NDP	O4D-C4D-C5D-O5D
3	A	403	NDP	C2B-O2B-P2B-O3X
4	A	404	9TY	O09-C02-C03-C08
4	I	403	9TY	O01-C02-C03-C07
4	I	403	9TY	O09-C02-C03-C08
3	B	402	NDP	O4D-C4D-C5D-O5D
3	D	402	NDP	C3B-C4B-C5B-O5B
3	K	402	NDP	C3B-C4B-C5B-O5B
3	D	402	NDP	C2D-C1D-N1N-C6N
3	B	402	NDP	C2N-C3N-C7N-O7N
3	D	402	NDP	C2N-C3N-C7N-O7N
4	D	403	9TY	O01-C02-C03-C04
4	K	403	9TY	O01-C02-C03-C04
3	E	402	NDP	O4D-C1D-N1N-C2N
3	H	403	NDP	O4D-C1D-N1N-C2N

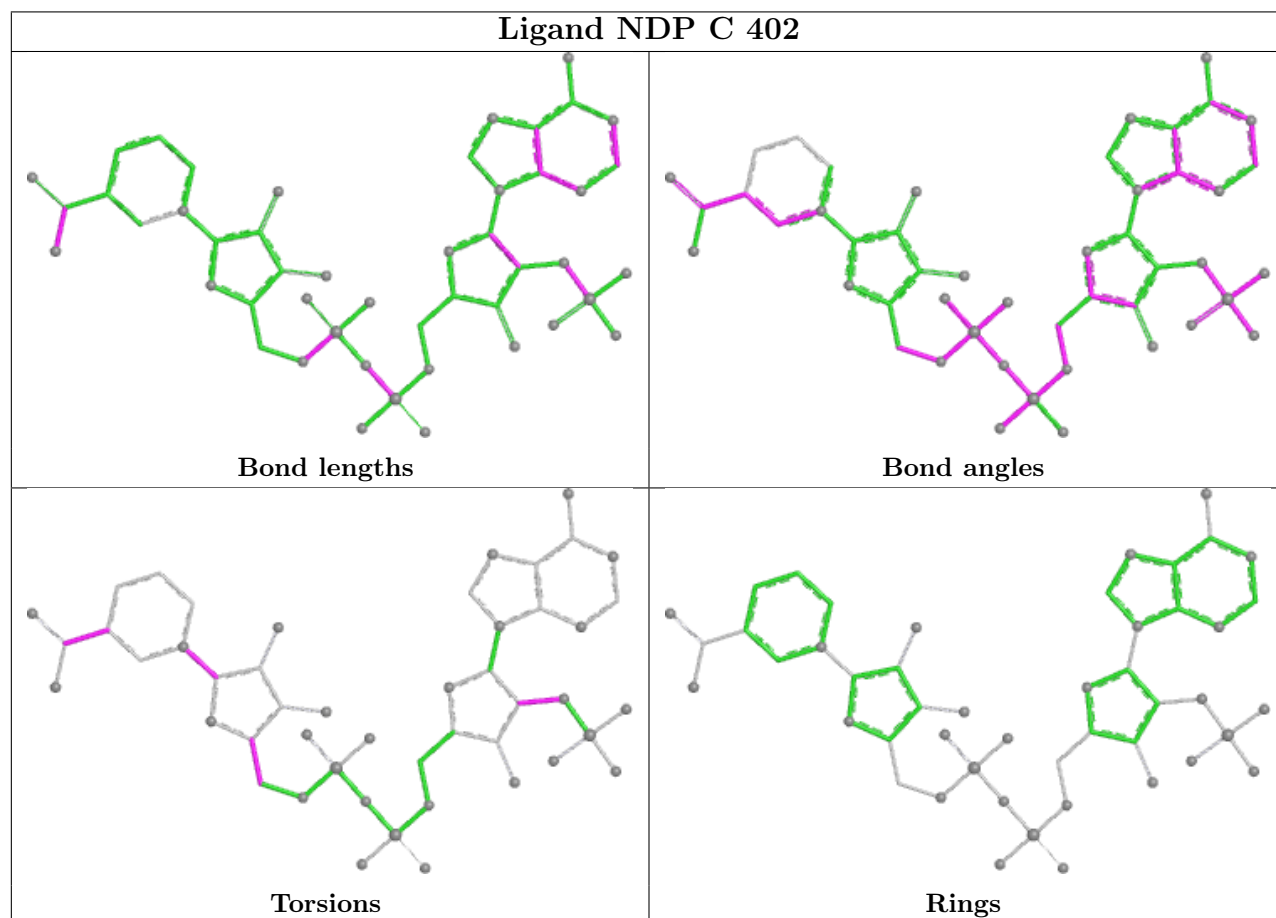
There are no ring outliers.

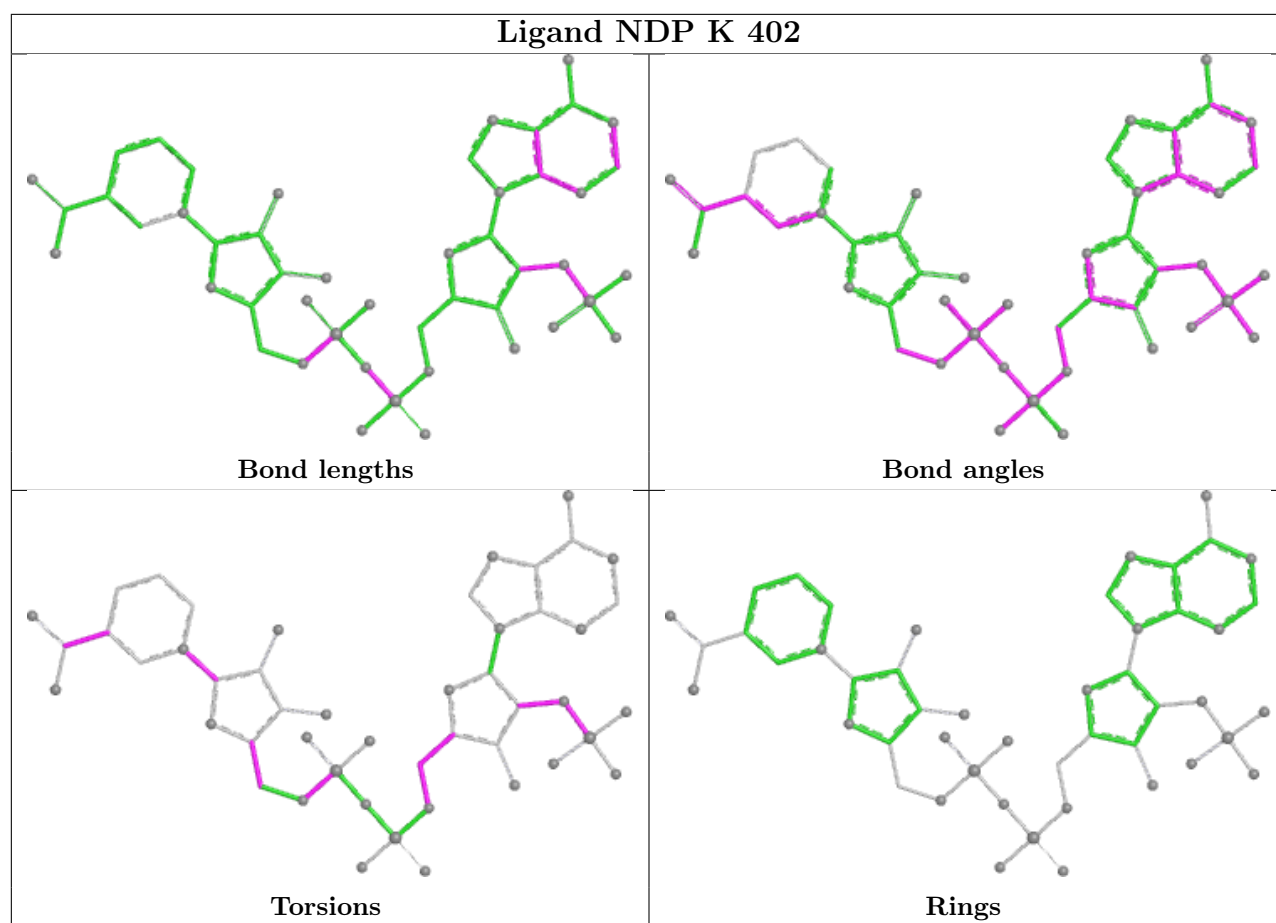
8 monomers are involved in 21 short contacts:

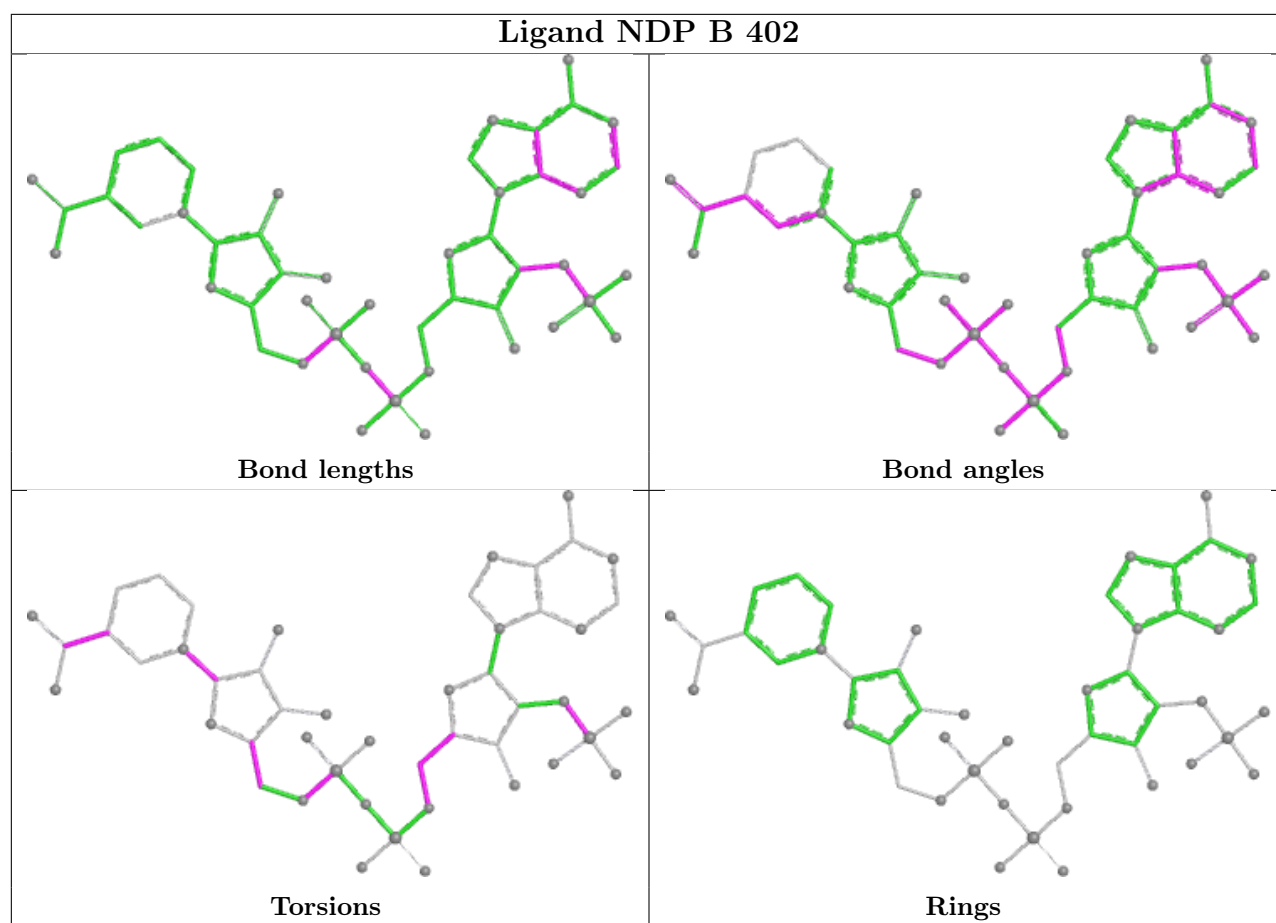
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	402	NDP	2	0
3	J	403	NDP	2	0
3	I	402	NDP	2	0
3	F	403	NDP	2	0
3	E	402	NDP	2	0
3	L	404	NDP	2	0
3	H	403	NDP	2	0
3	G	402	NDP	7	0

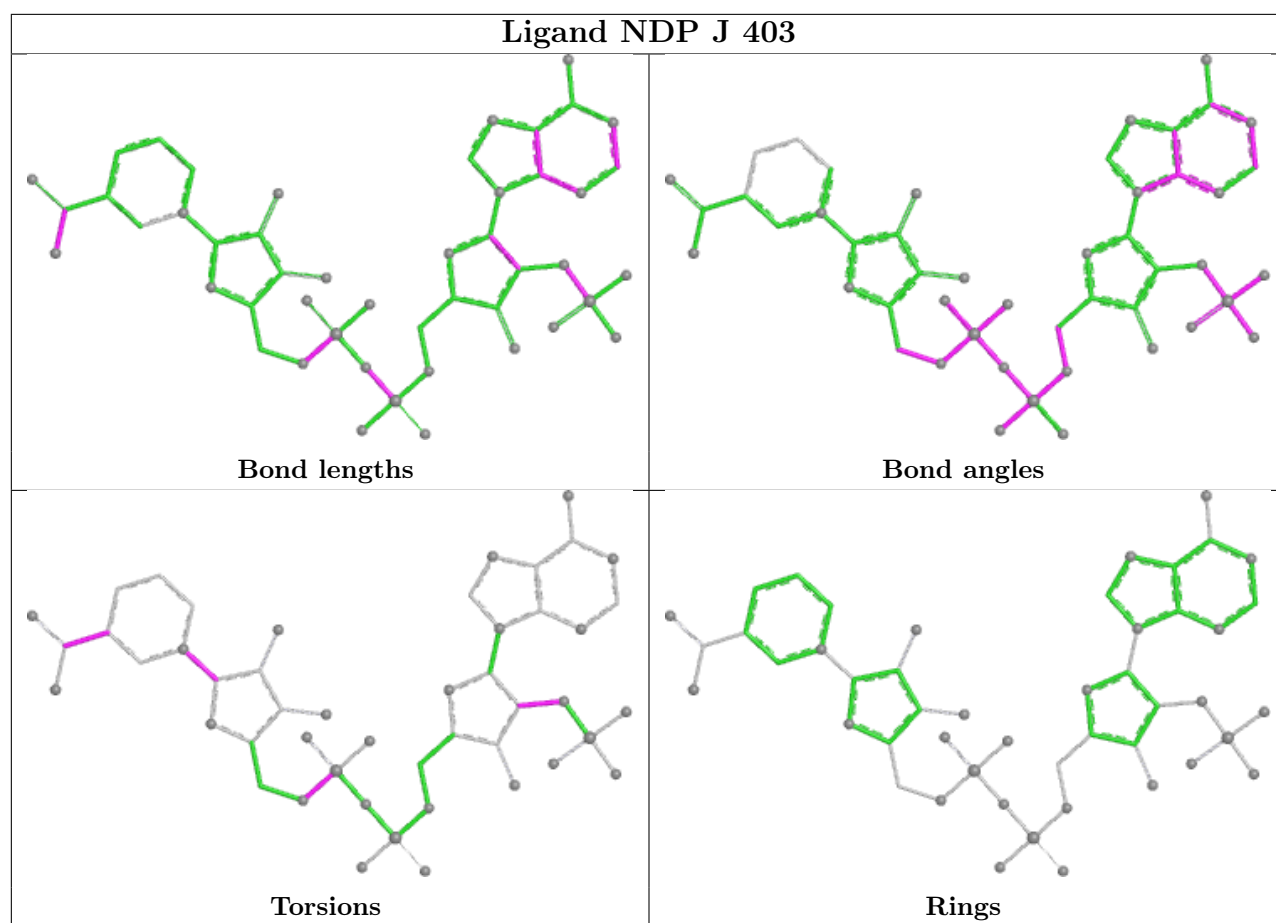
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

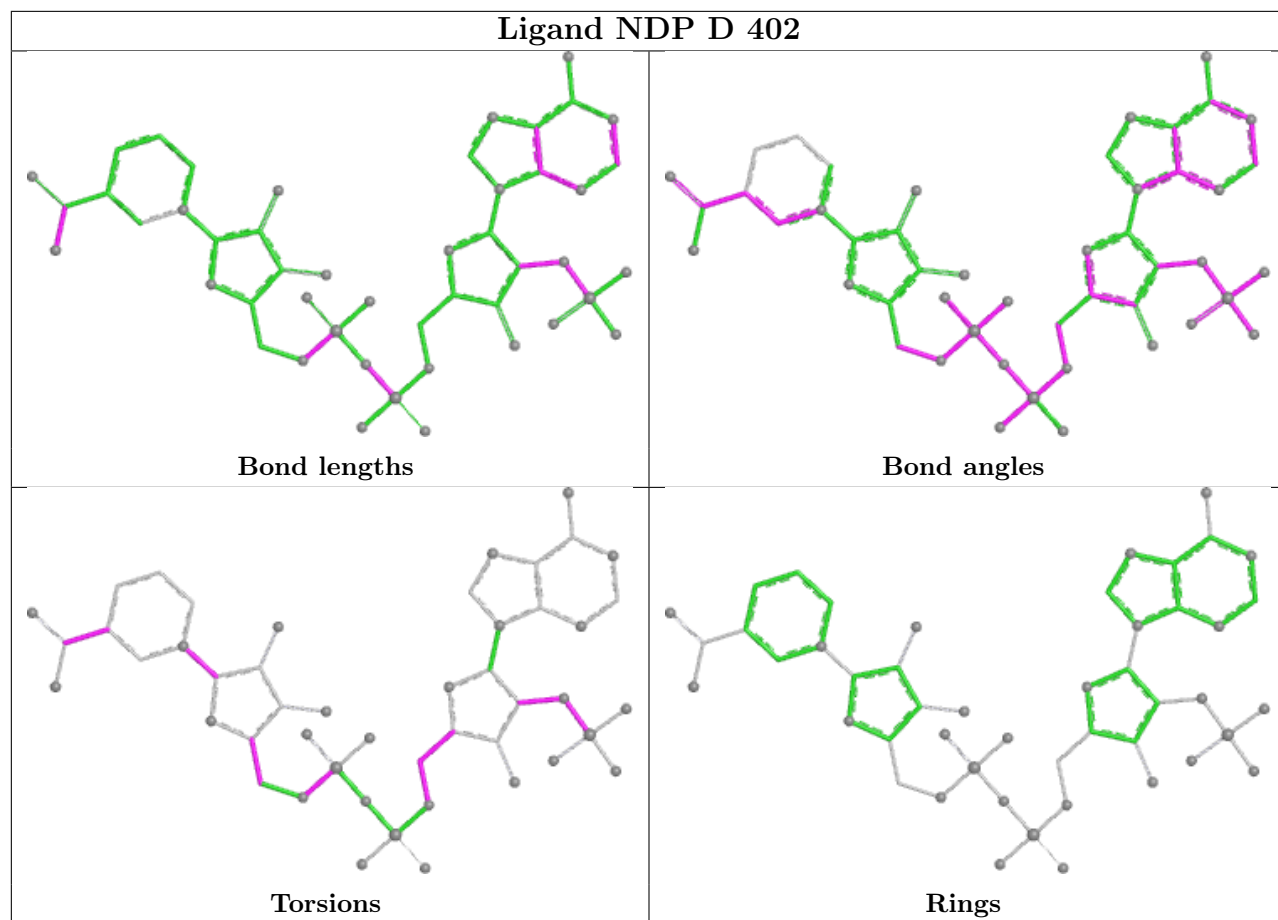
average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents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

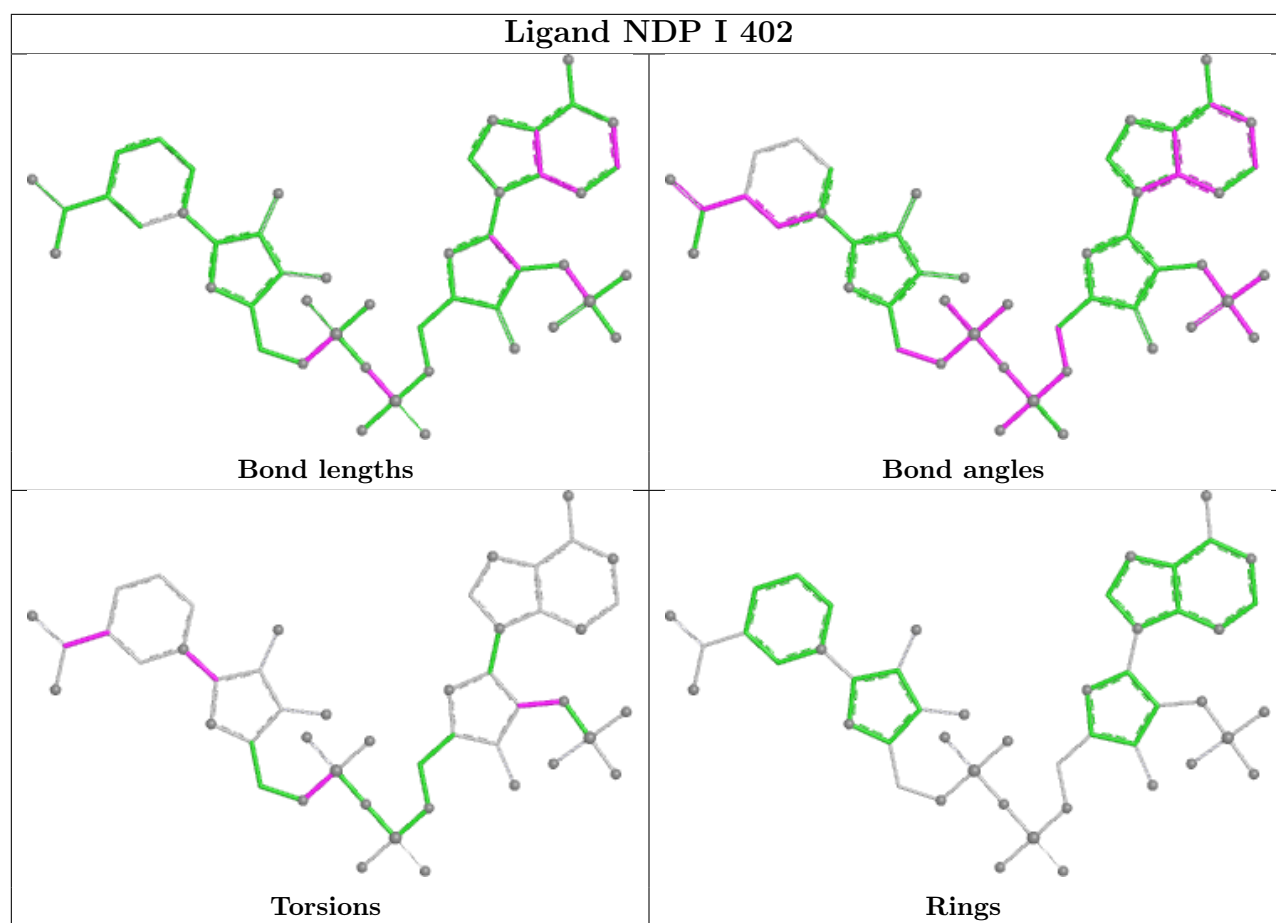


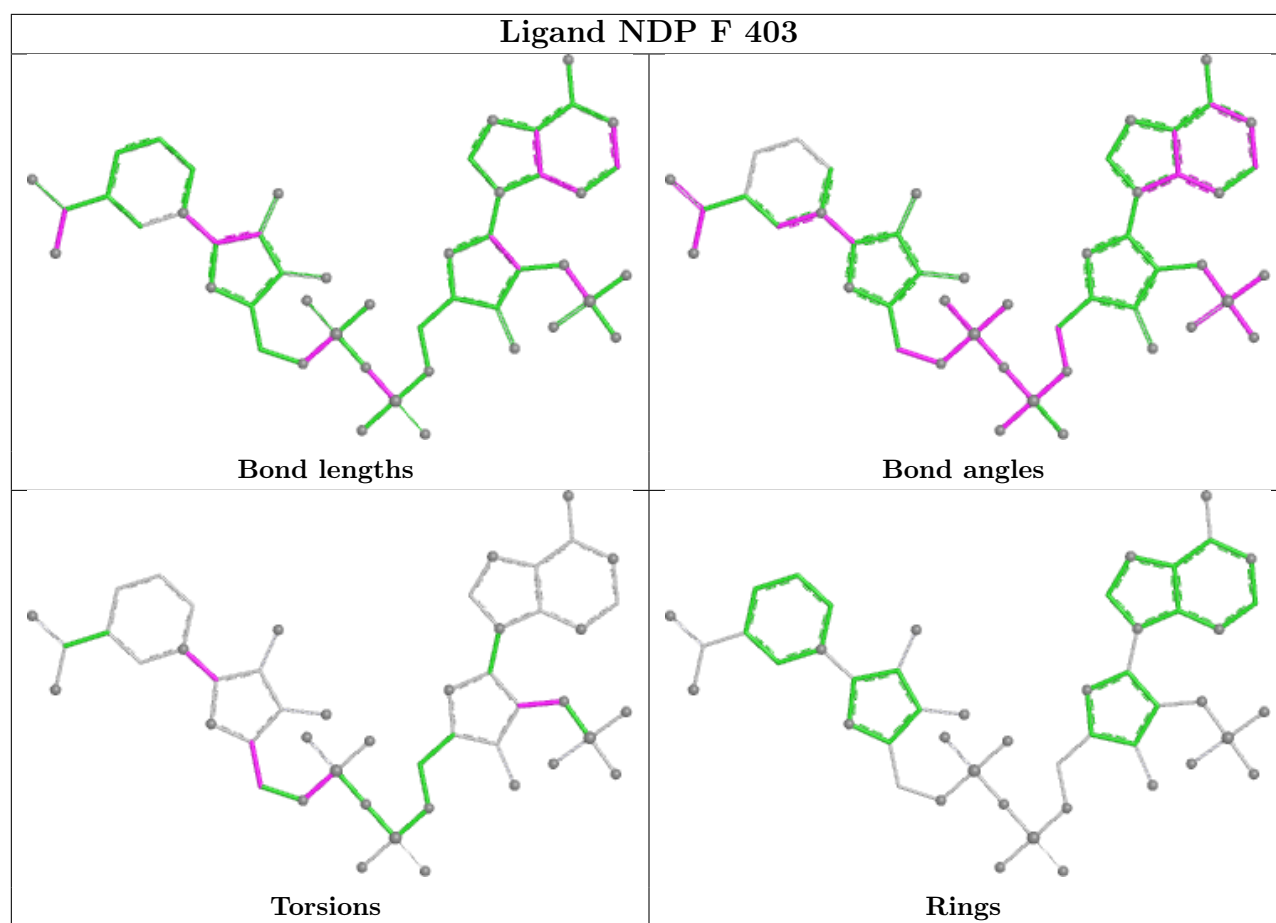


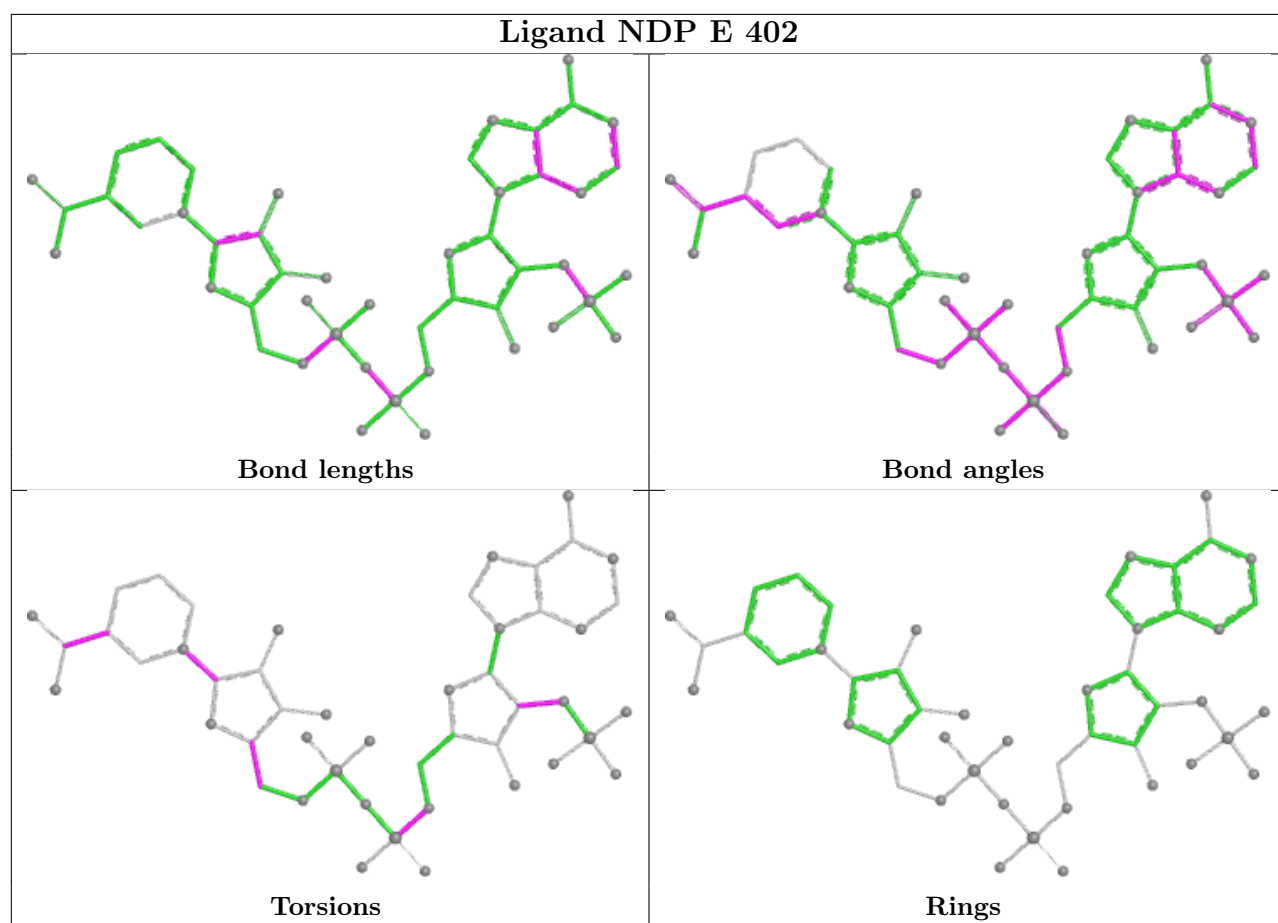


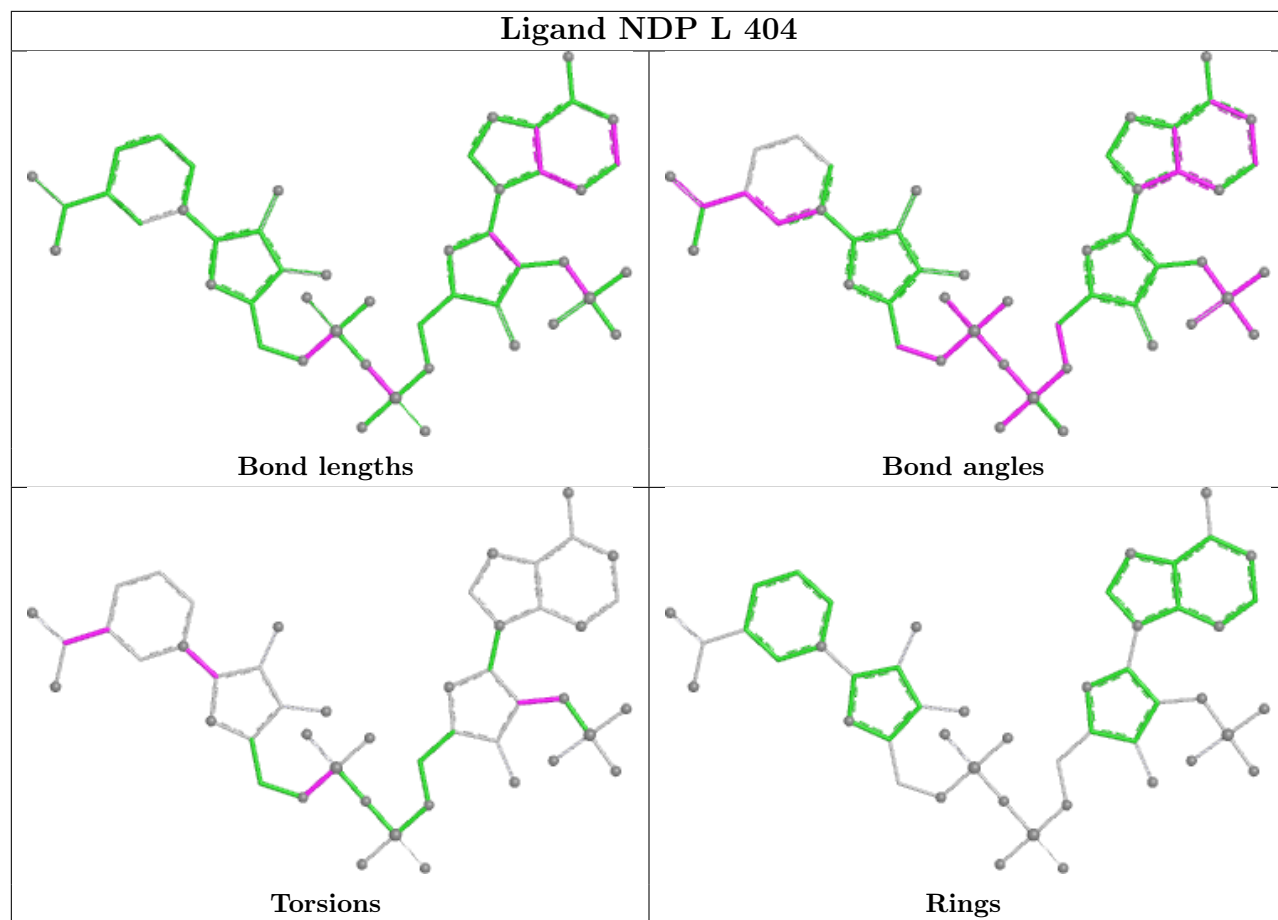


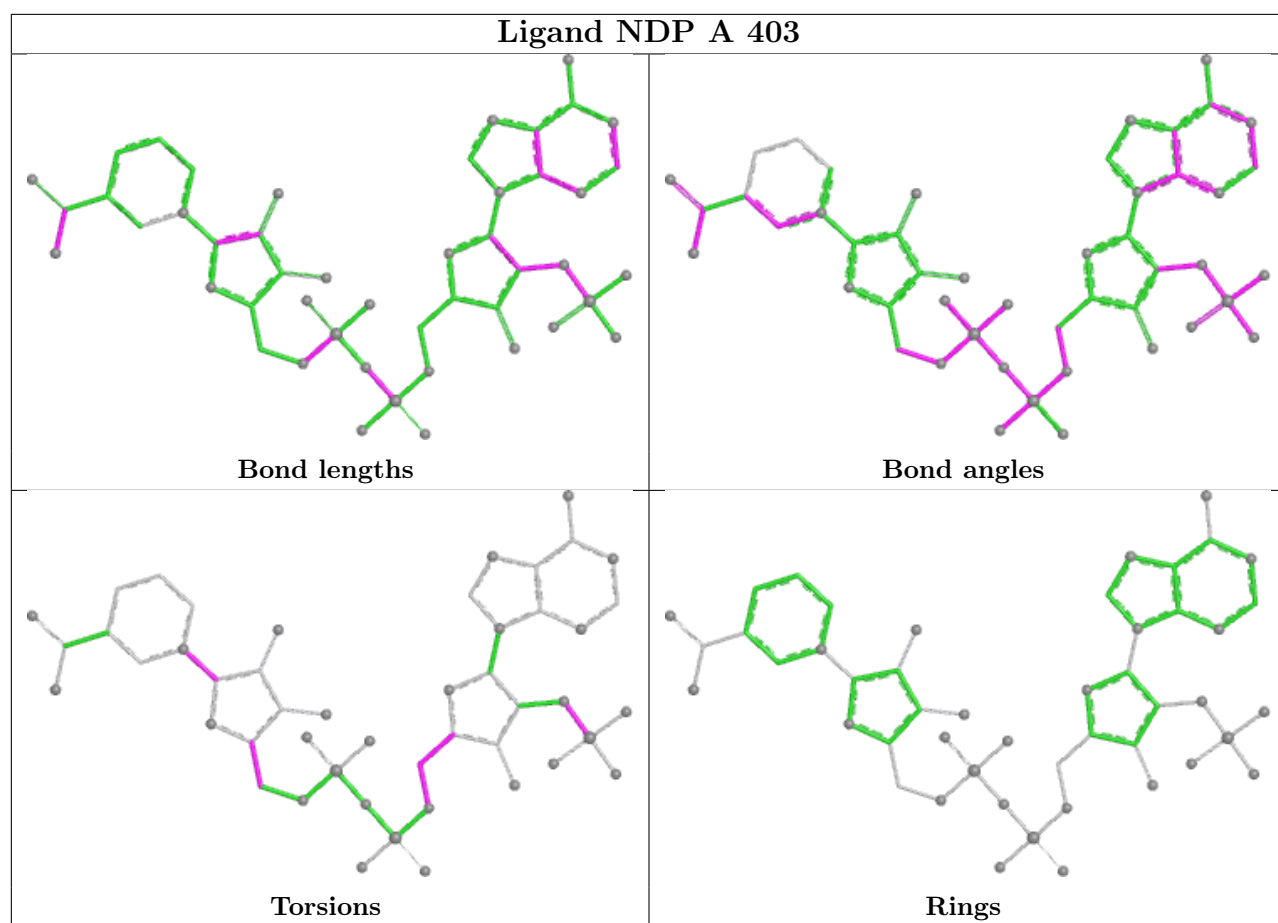


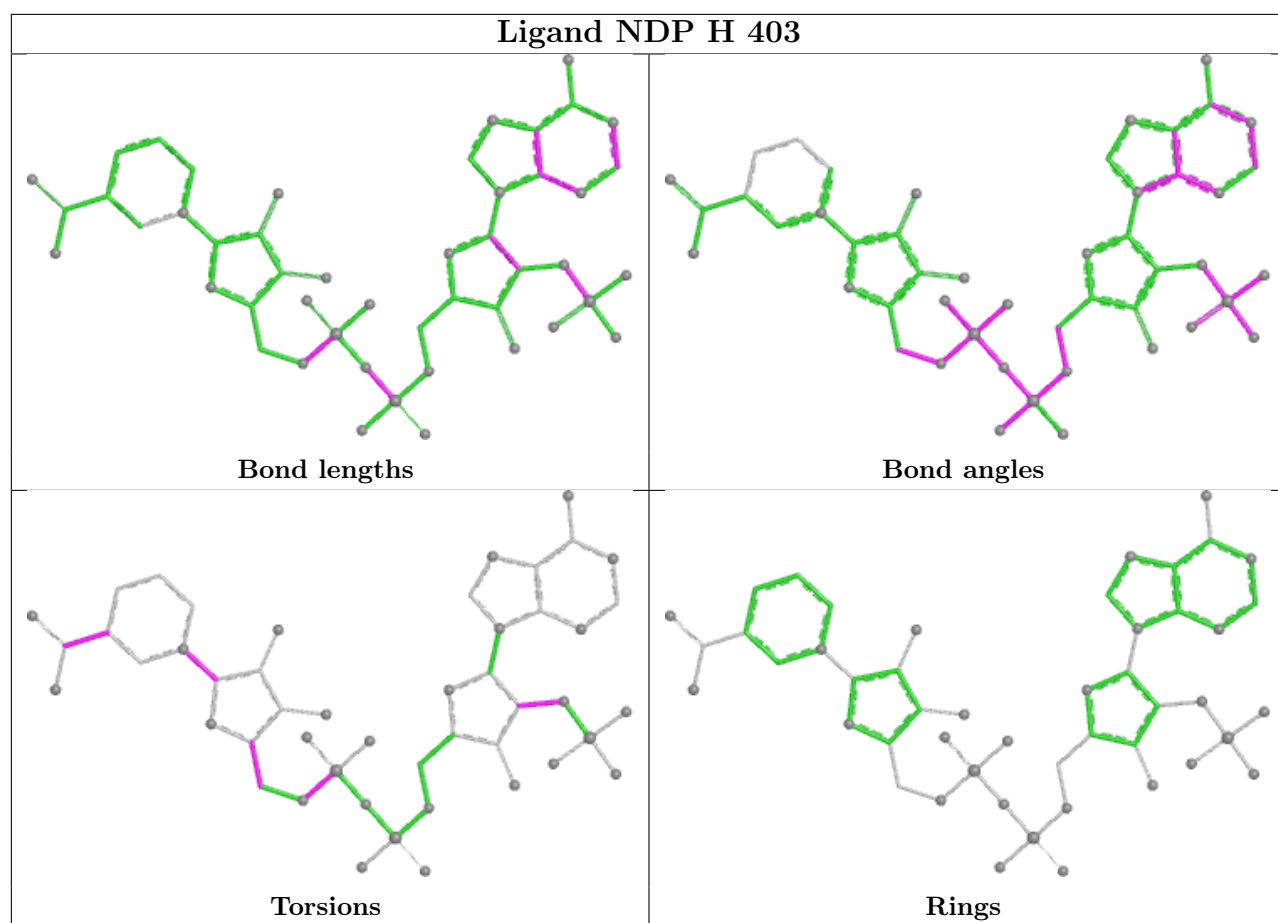


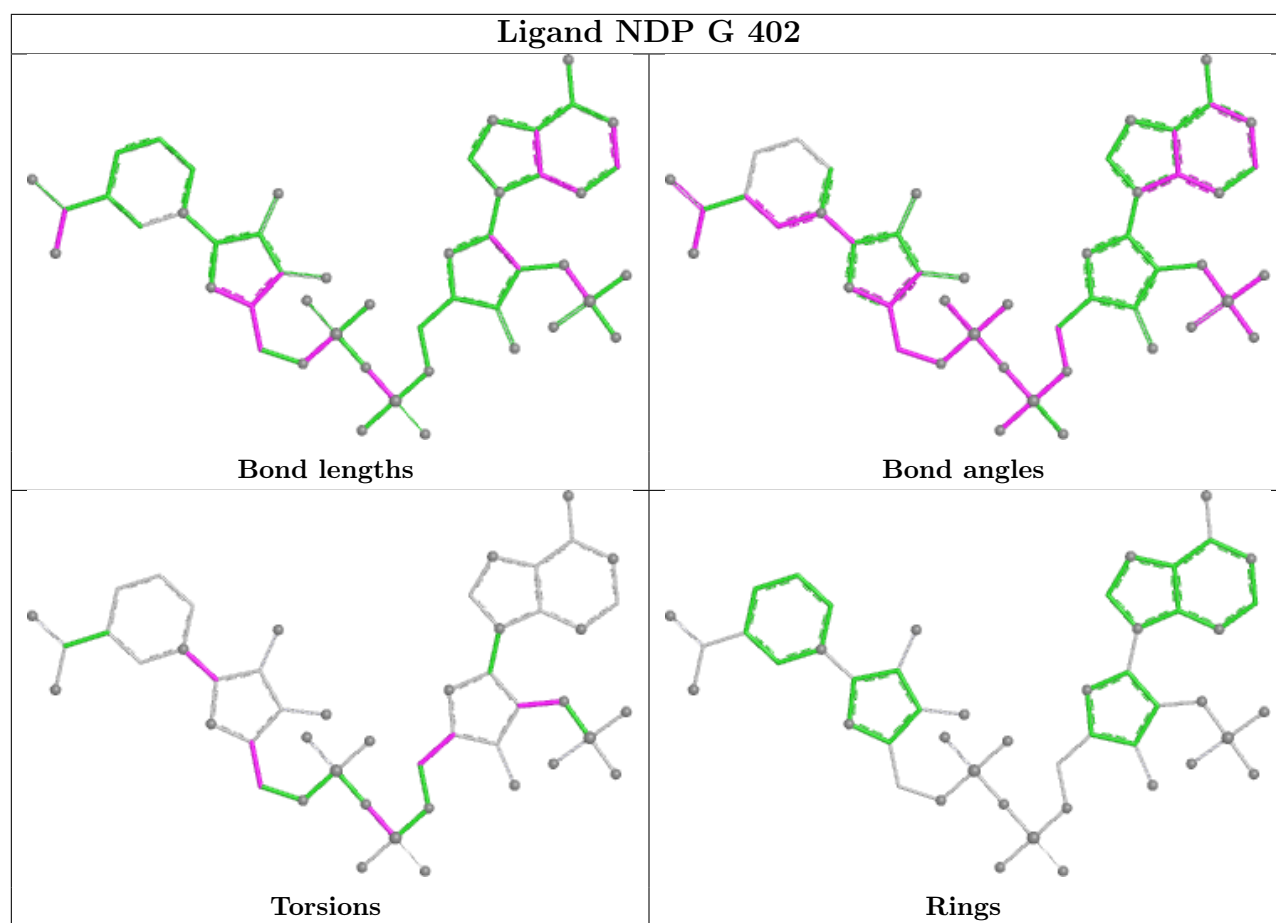












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

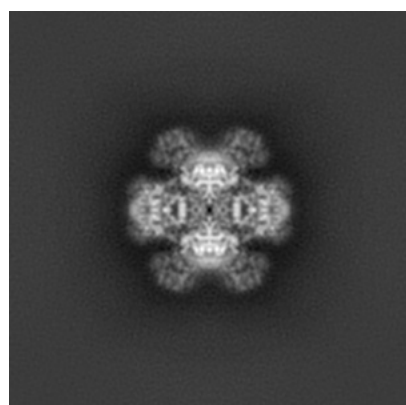
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9800. These allow visual inspection of the internal detail of the map and identification of artifacts.

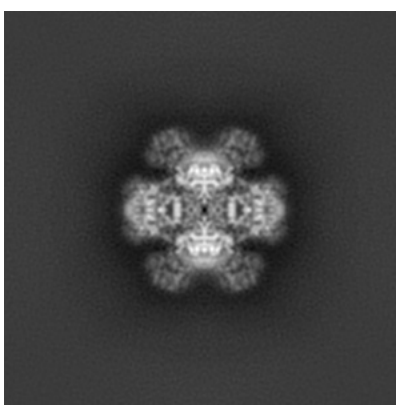
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

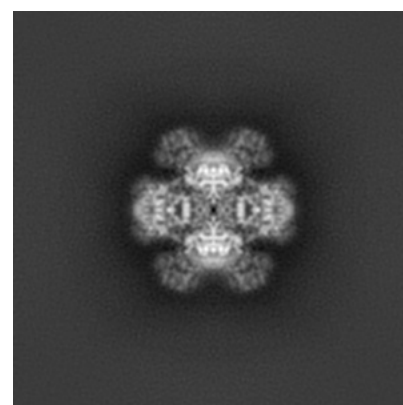
6.1.1 Primary map



X



Y

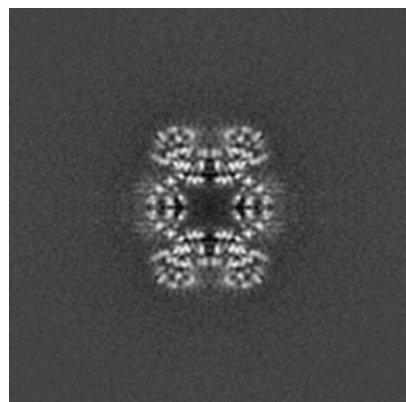


Z

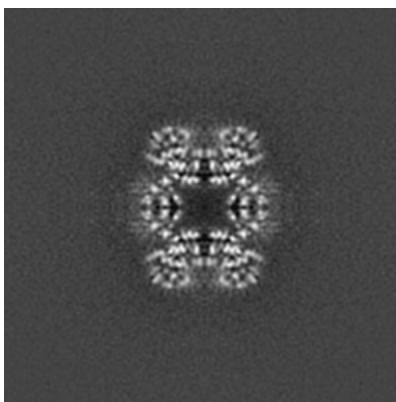
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

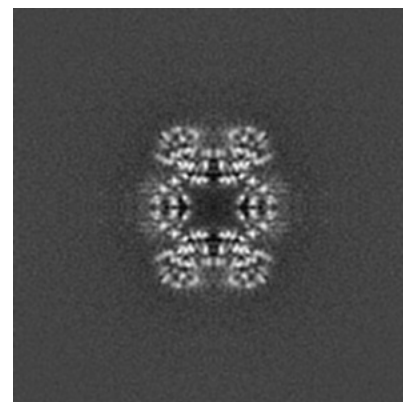
6.2.1 Primary map



X Index: 182



Y Index: 182

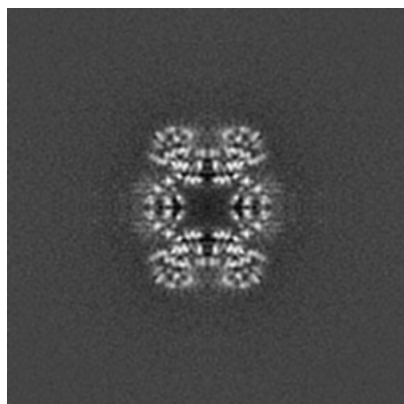


Z Index: 182

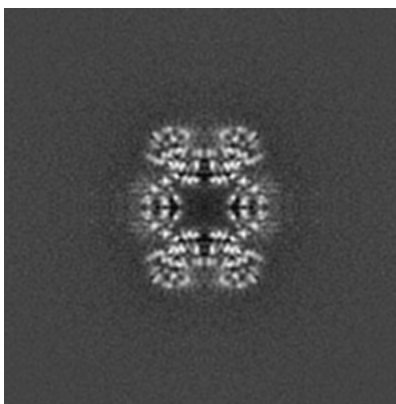
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

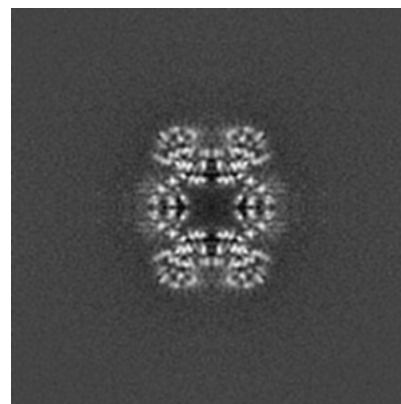
6.3.1 Primary map



X Index: 182



Y Index: 182

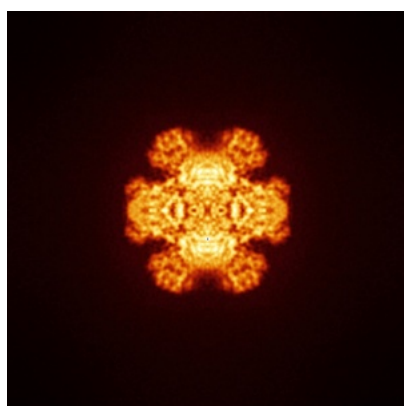


Z Index: 182

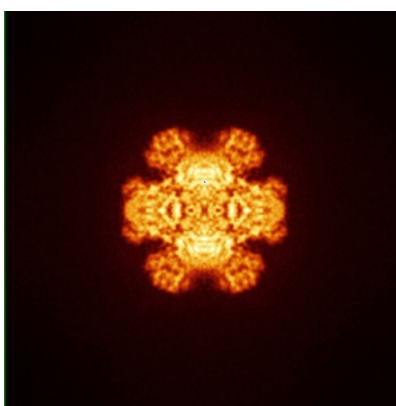
The images above show the largest variance slices of the map in three orthogonal directions.

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

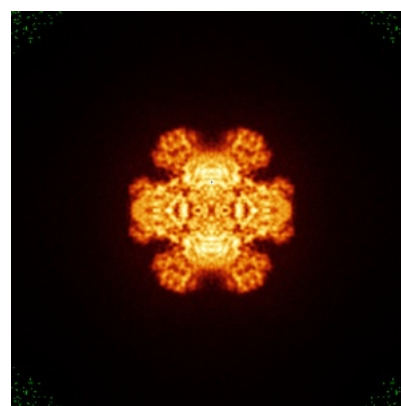
6.4.1 Primary map



X



Y

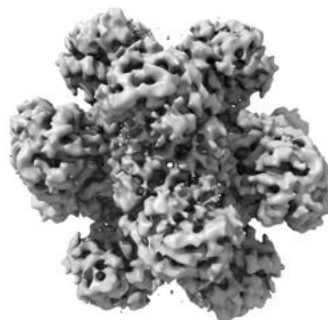


Z

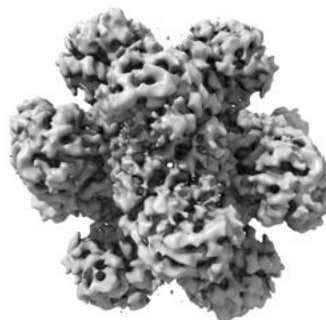
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

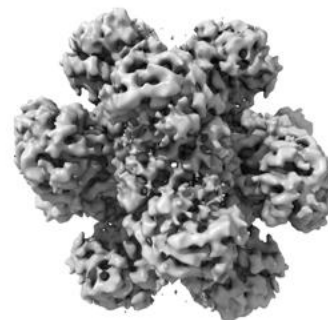
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.8. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

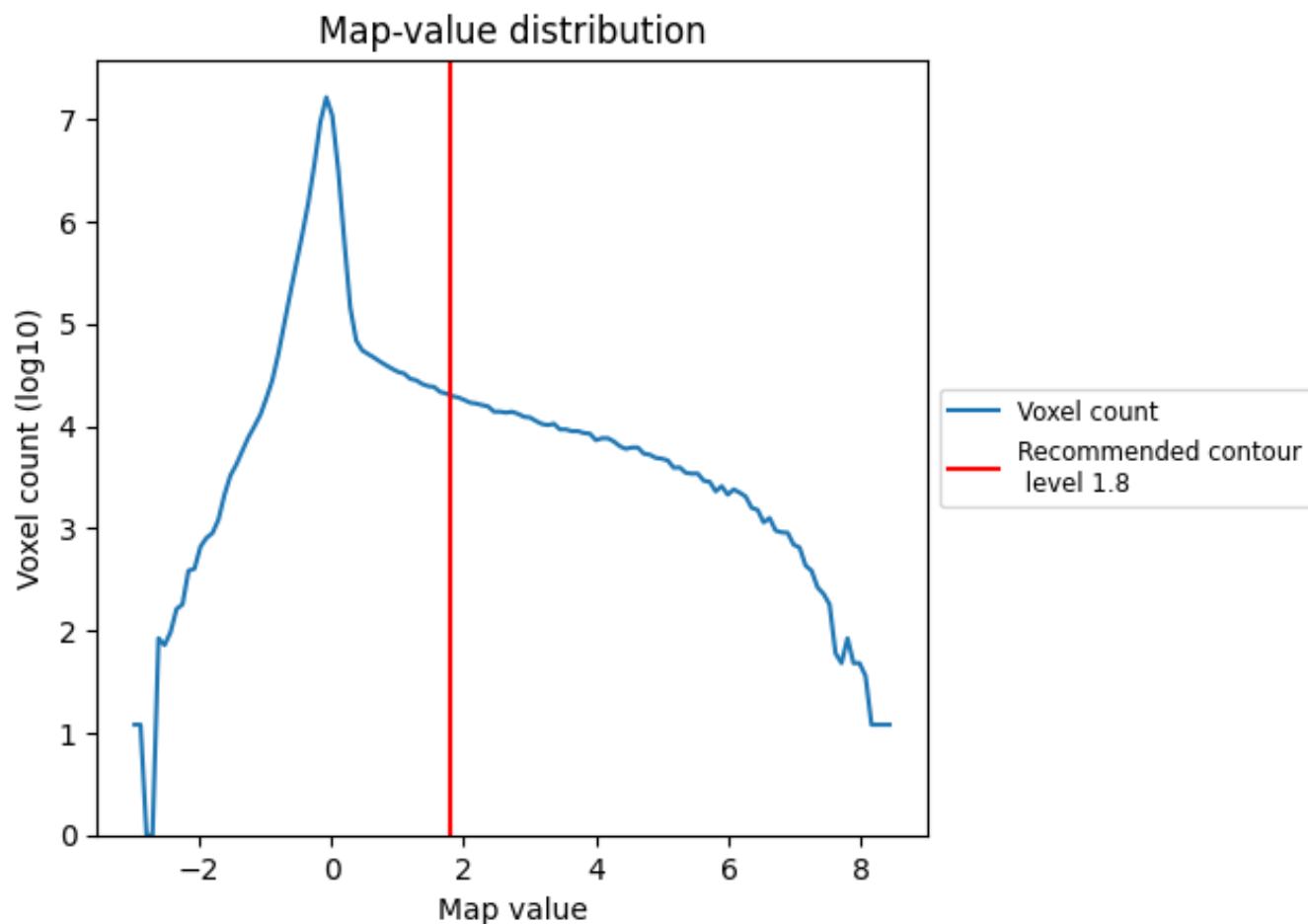
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

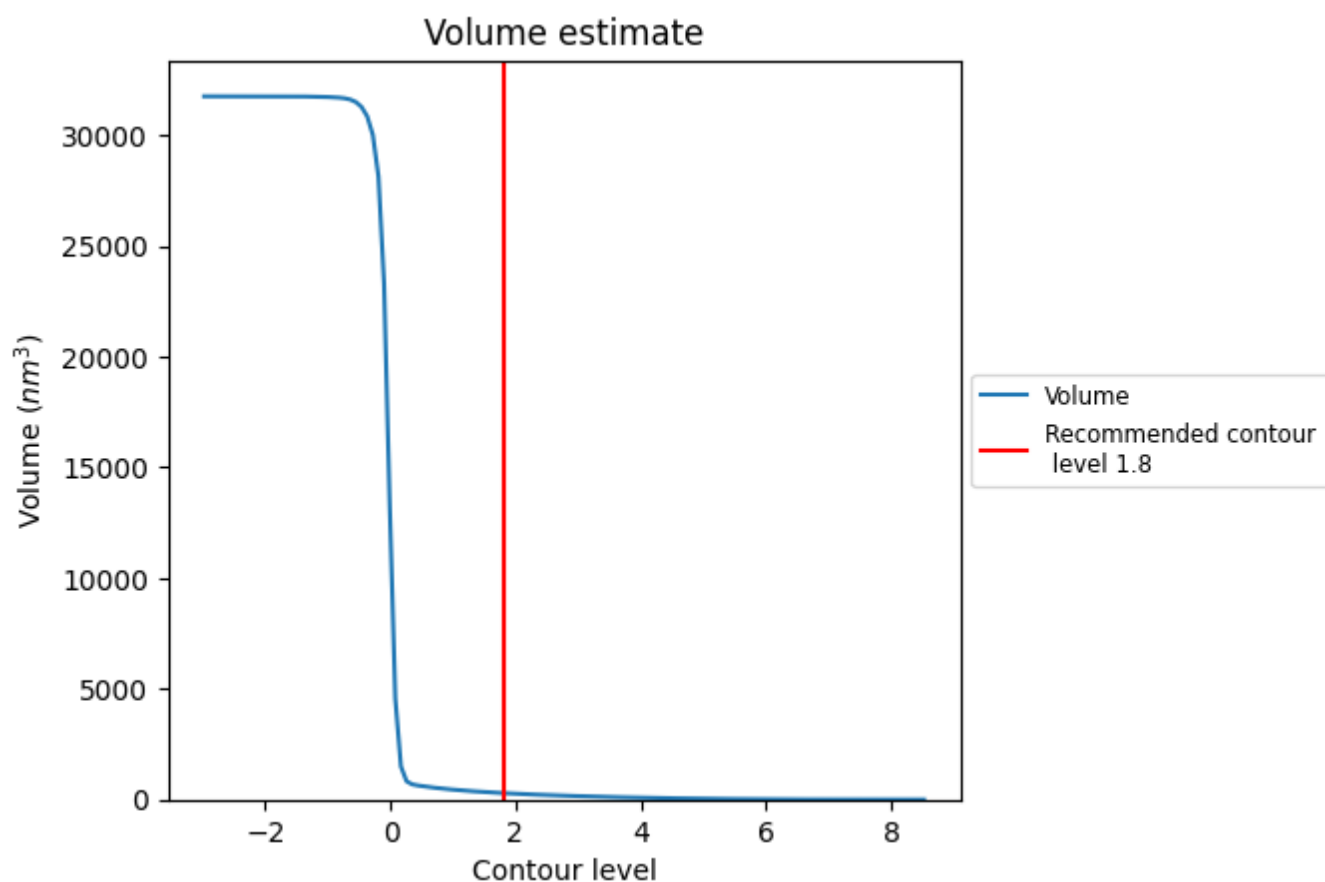
This section contains the results of statistical analysis of the map.

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.

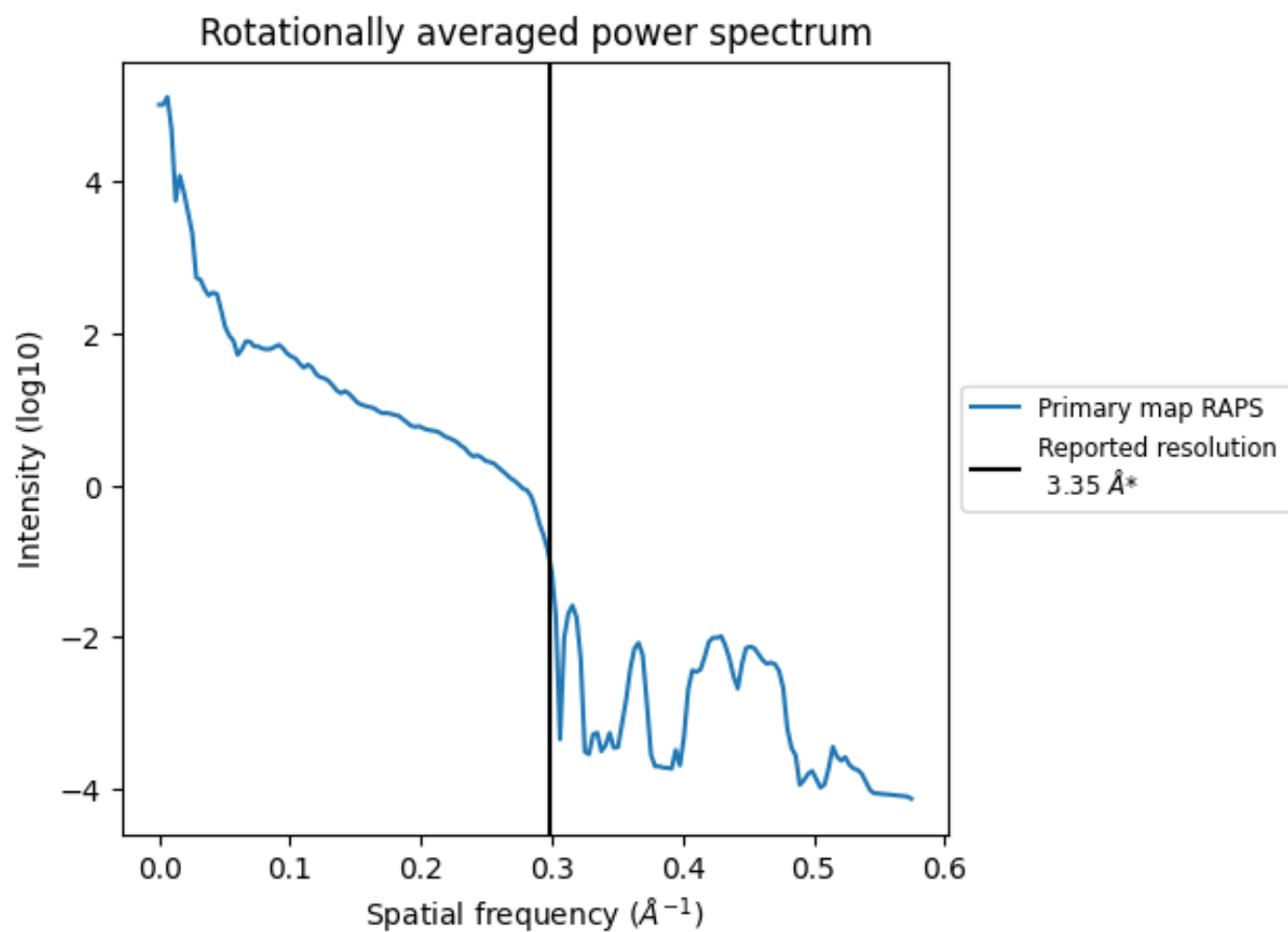
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 292 nm³; this corresponds to an approximate mass of 264 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 0.299 Å⁻¹

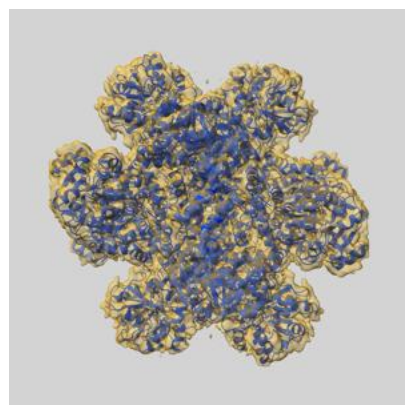
8 Fourier-Shell correlation

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

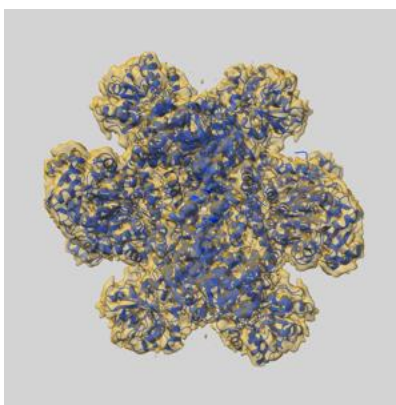
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-9800 and PDB model 6JCZ. Per-residue inclusion information can be found in section [3](#) on page [9](#).

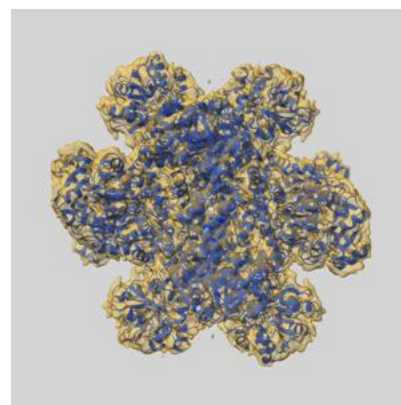
9.1 Map-model overlay [i](#)



X



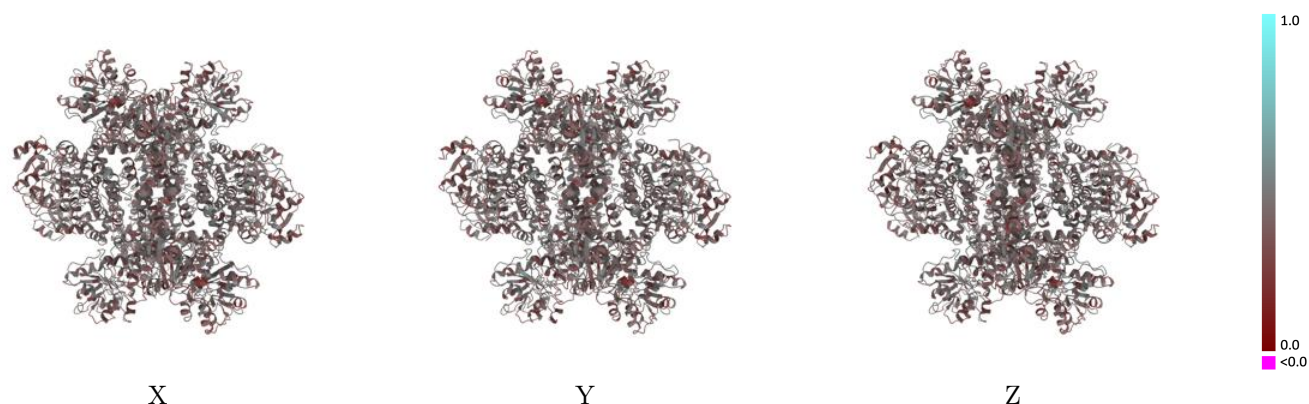
Y



Z

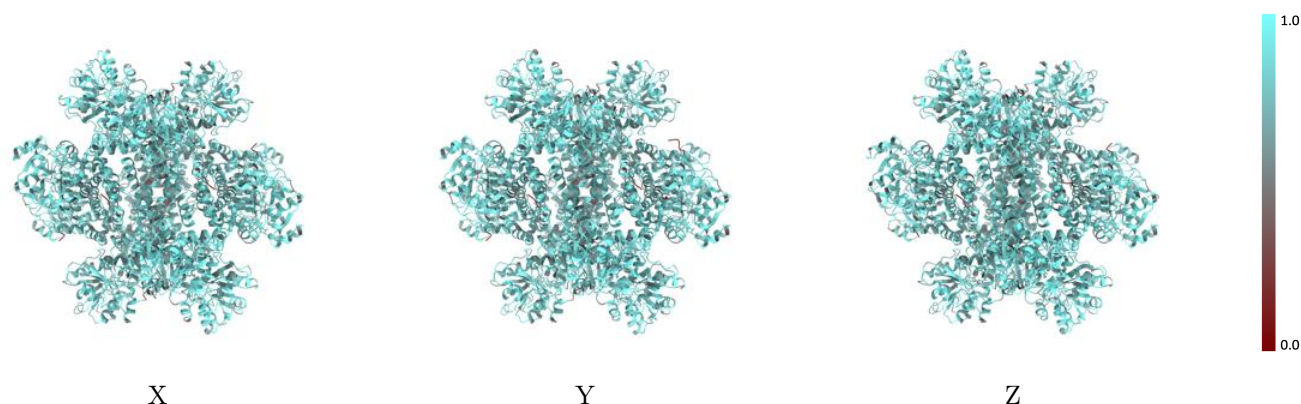
The images above show the 3D surface view of the map at the recommended contour level 1.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



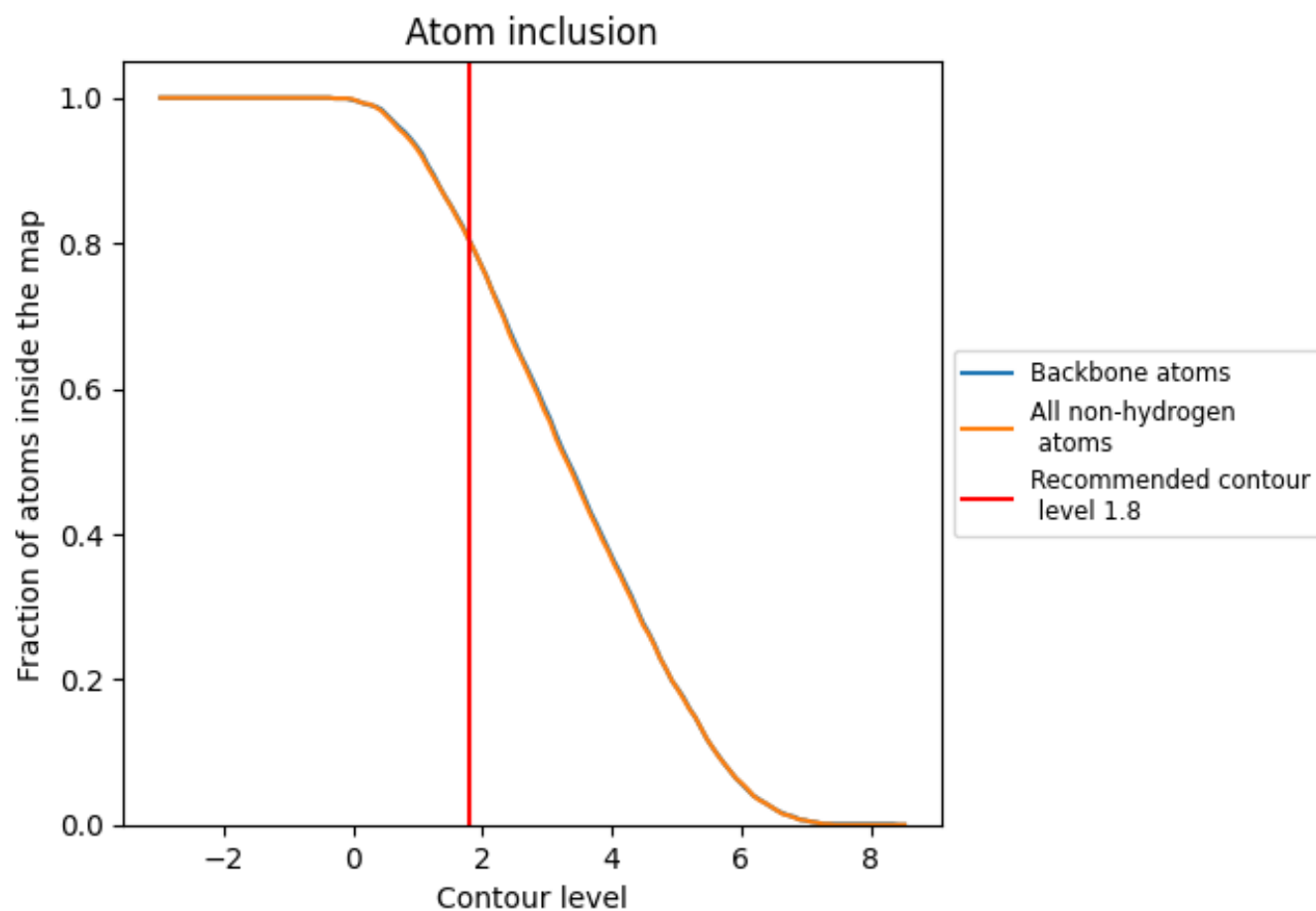
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (1.8).

9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 80% 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 (1.8) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8030	0.4050
A	0.8110	0.4060
B	0.8120	0.4060
C	0.8110	0.4020
D	0.8140	0.4050
E	0.8140	0.4000
F	0.8130	0.4070
G	0.8190	0.4050
H	0.8090	0.4040
I	0.8150	0.4070
J	0.8150	0.4050
K	0.8130	0.4070
L	0.8140	0.4080

1.0

0.0

<0.0