



Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 11:26 AM JST

PDB ID : 7CGE
EMDB ID : EMD-30355
Title : The overall structure of nucleotide free MlaFEDB complex
Authors : Chi, X.M.; Fan, Q.X.; Zhang, Y.Y.; Liang, K.; Zhou, Q.; Li, Y.Y.
Deposited on : 2020-07-01
Resolution : 2.90 Å (reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

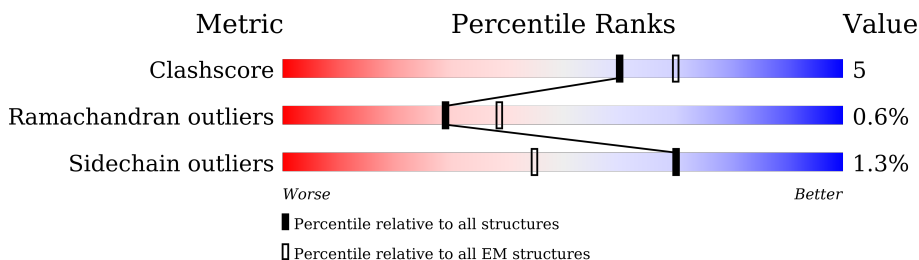
EMDB validation analysis : 0.0.1.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

1 Overall quality at a glance

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

The reported resolution of this entry is 2.90 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.



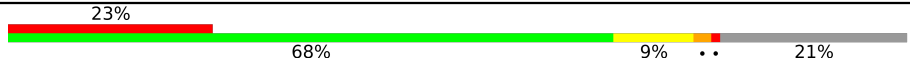
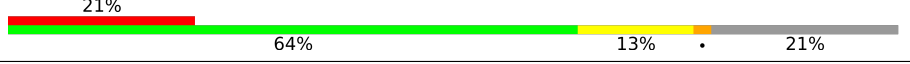
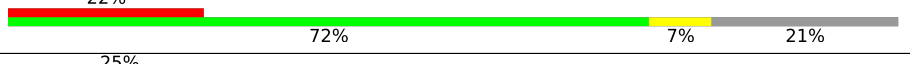

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	260	
1	D	260	
2	B	269	
2	E	269	
3	C	97	
3	F	97	
4	G	183	
4	H	183	

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Mol	Chain	Length	Quality of chain
4	I	183	
4	J	183	
4	K	183	
4	L	183	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 16406 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 Lipid asymmetry maintenance ABC transporter permease subunit MlaE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	257	Total	C	N	O	S	0	0
			1934	1267	324	331	12		
1	D	257	Total	C	N	O	S	0	0
			1934	1267	324	331	12		

- Molecule 2 is a protein called Phospholipid ABC transporter ATP-binding protein MlaF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	263	Total	C	N	O	S	0	0
			1996	1268	352	362	14		
2	E	263	Total	C	N	O	S	0	0
			1996	1268	352	362	14		

- Molecule 3 is a protein called Lipid asymmetry maintenance protein MlaB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	94	Total	C	N	O	S	0	0
			724	459	123	139	3		
3	F	94	Total	C	N	O	S	0	0
			724	459	123	139	3		

- Molecule 4 is a protein called Outer membrane lipid asymmetry maintenance protein MlaD.

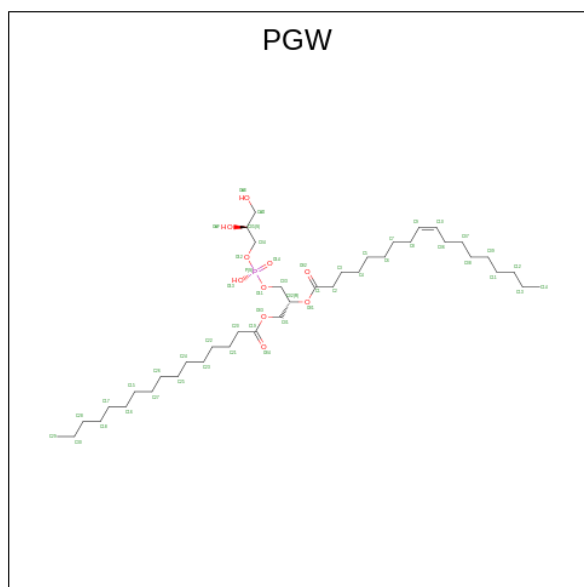
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	G	144	Total	C	N	O	S	0	0
			1105	713	178	212	2		
4	H	144	Total	C	N	O	S	0	0
			1105	713	178	212	2		
4	I	144	Total	C	N	O	S	0	0
			1033	652	172	208	1		
4	J	144	Total	C	N	O	S	0	0
			1105	713	178	212	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	K	144	Total	C	N	O	S	0	0
			1105	713	178	212	2		
4	L	144	Total	C	N	O	S	0	0
			1033	652	172	208	1		

- Molecule 5 is (1R)-2-{[(S)-{[(2S)-2,3-dihydroxypropyl]oxy}(hydroxy)phosphoryl]oxy}-1-[(hexadecanoyloxy)methyl]ethyl (9Z)-octadec-9-enoate (three-letter code: PGW) (formula: C₄₀H₇₇O₁₀P).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	A	1	Total	C	O	P	0
			51	40	10	1	
5	D	1	Total	C	O	P	0
			51	40	10	1	
5	D	1	Total	C	O	P	0
			51	40	10	1	

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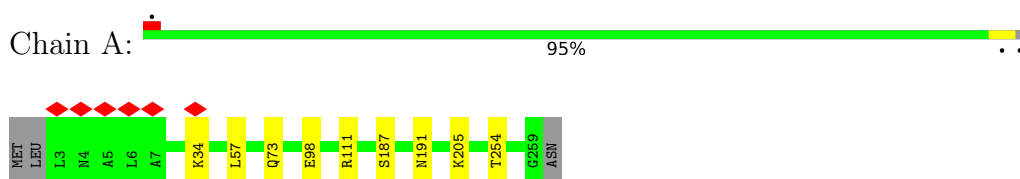
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Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
5	D	1	Total 51	C 40	O 10	P 1	0
5	D	1	Total 51	C 40	O 10	P 1	0
5	G	1	Total 51	C 40	O 10	P 1	0
5	J	1	Total 51	C 40	O 10	P 1	0

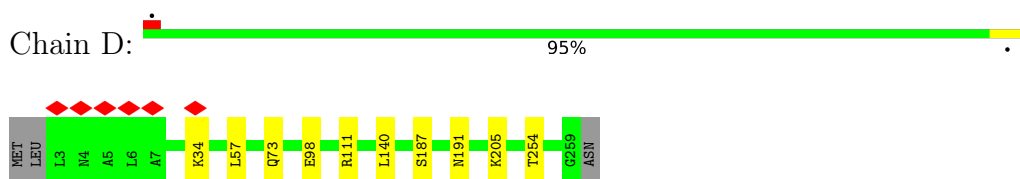
3 Residue-property plots [i](#)

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.

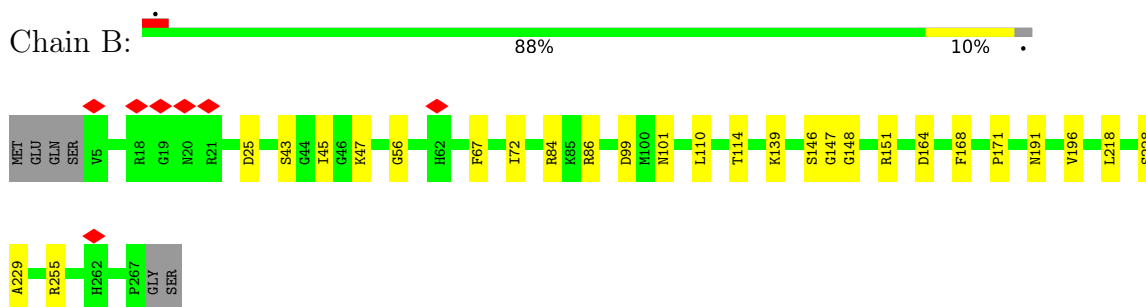
- Molecule 1: Lipid asymmetry maintenance ABC transporter permease subunit MlaE



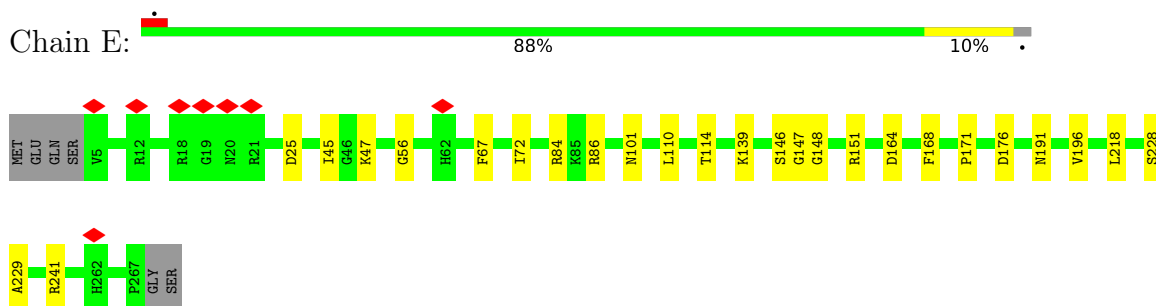
- Molecule 1: Lipid asymmetry maintenance ABC transporter permease subunit MlaE



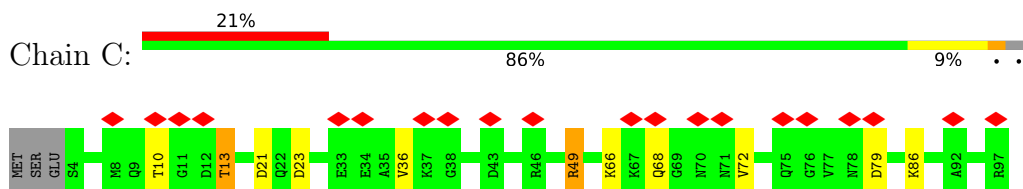
- Molecule 2: Phospholipid ABC transporter ATP-binding protein MlaF



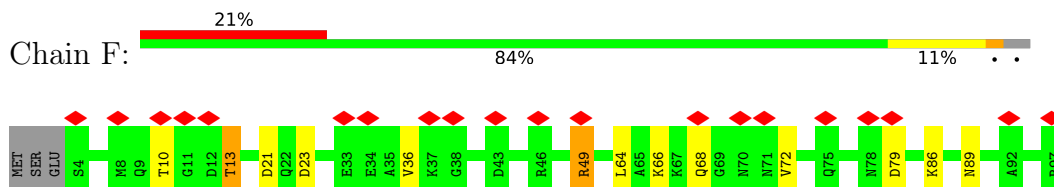
- Molecule 2: Phospholipid ABC transporter ATP-binding protein MlaF



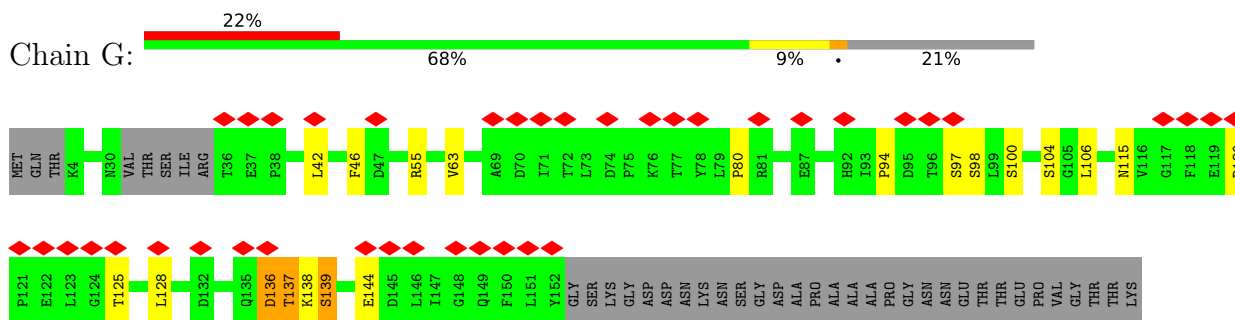
- Molecule 3: Lipid asymmetry maintenance protein MlaB



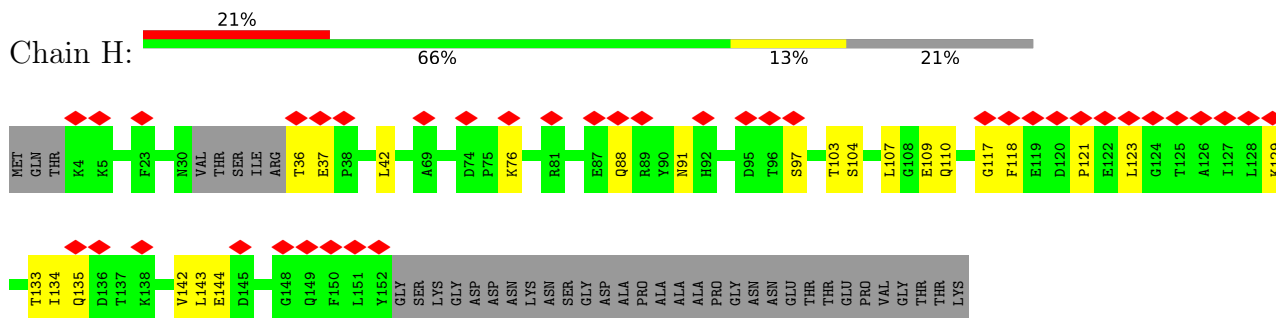
- Molecule 3: Lipid asymmetry maintenance protein MlaB



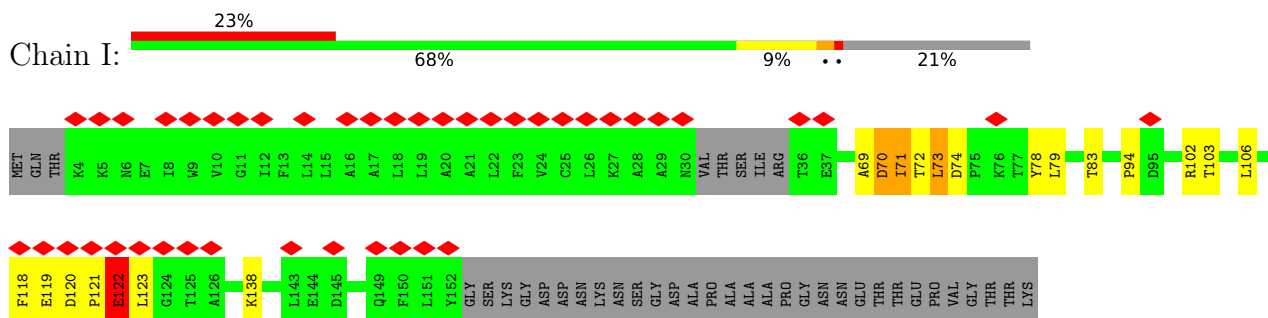
- Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



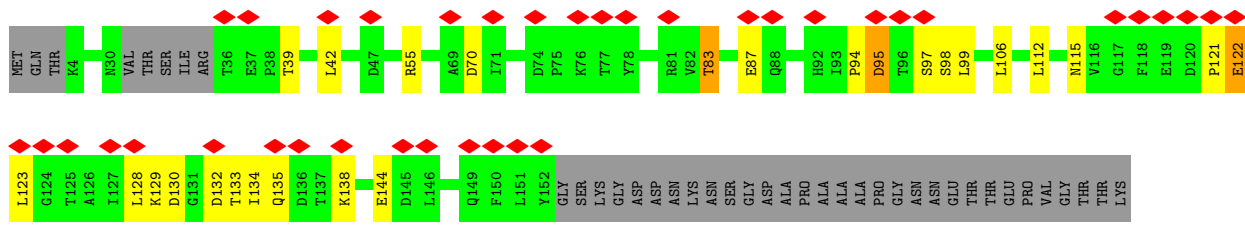
- Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



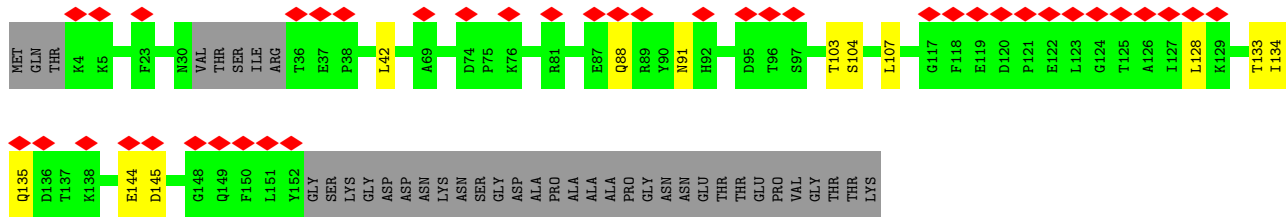
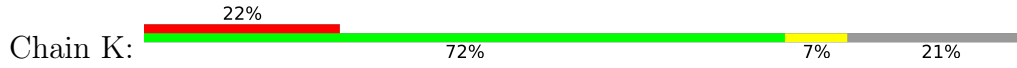
- Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



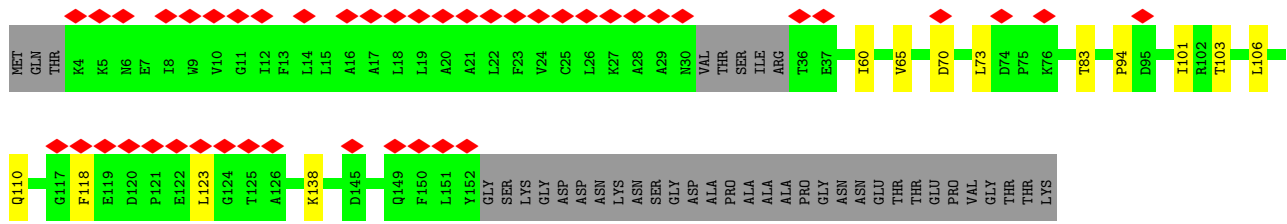
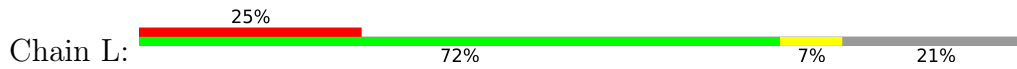
- Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



● Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



● Molecule 4: Outer membrane lipid asymmetry maintenance protein MlaD



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	271252	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.151	Depositor
Minimum map value	-0.071	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	347.84, 347.84, 347.84	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.087, 1.087, 1.087	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: PGW

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	0.46	0/1972	0.54	0/2680
1	D	0.46	0/1972	0.55	0/2680
2	B	0.44	0/2036	0.62	0/2764
2	E	0.44	0/2036	0.62	0/2764
3	C	0.35	0/733	0.58	0/996
3	F	0.35	0/733	0.58	0/996
4	G	0.36	0/1123	0.63	0/1527
4	H	0.35	0/1123	0.70	0/1527
4	I	0.37	0/1047	0.59	0/1429
4	J	0.37	0/1123	0.62	0/1527
4	K	0.33	0/1123	0.67	0/1527
4	L	0.38	0/1047	0.59	0/1429
All	All	0.41	0/16068	0.61	0/21846

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1934	0	2040	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	1934	0	2040	7	0
2	B	1996	0	2039	15	0
2	E	1996	0	2039	14	0
3	C	724	0	749	6	0
3	F	724	0	749	7	0
4	G	1105	0	1129	25	0
4	H	1105	0	1129	16	0
4	I	1033	0	973	26	0
4	J	1105	0	1129	16	0
4	K	1105	0	1129	10	0
4	L	1033	0	973	7	0
5	A	306	0	456	14	0
5	D	204	0	304	6	0
5	G	51	0	76	2	0
5	J	51	0	76	1	0
All	All	16406	0	17030	157	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 5.

All (157) 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)
4:G:46:PHE:CE1	4:G:137:THR:HG23	1.42	1.50
4:G:46:PHE:CE1	4:G:137:THR:CG2	2.22	1.21
4:G:46:PHE:CD1	4:G:137:THR:CG2	2.23	1.21
4:I:119:GLU:C	4:I:121:PRO:HD3	1.73	1.07
4:I:73:LEU:HD12	4:I:74:ASP:N	1.76	1.01
4:I:73:LEU:HD12	4:I:74:ASP:H	1.32	0.92
4:G:46:PHE:CD1	4:G:137:THR:HG23	1.93	0.86
4:G:46:PHE:CD1	4:G:138:LYS:O	2.29	0.85
4:G:46:PHE:CZ	4:G:137:THR:HG23	2.14	0.81
4:G:46:PHE:CD1	4:G:137:THR:HG22	2.15	0.81
4:I:120:ASP:N	4:I:121:PRO:CD	2.43	0.80
4:G:46:PHE:HE1	4:G:138:LYS:H	1.34	0.74
4:I:119:GLU:CB	4:I:121:PRO:HD3	2.18	0.74
4:I:120:ASP:N	4:I:121:PRO:HD3	2.02	0.74
4:I:73:LEU:CD1	4:I:79:LEU:O	2.41	0.68
4:I:119:GLU:C	4:I:121:PRO:CD	2.56	0.68
4:G:46:PHE:O	4:G:80:PRO:HD2	1.94	0.67
4:J:42:LEU:HD23	4:J:134:ILE:HD11	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:46:PHE:CE1	4:G:138:LYS:O	2.48	0.67
5:A:304:PGW:H07A	4:L:106:LEU:HD13	1.77	0.66
4:I:73:LEU:HD13	4:I:79:LEU:O	1.96	0.65
4:I:69:ALA:O	4:I:70:ASP:HB2	1.99	0.63
4:I:73:LEU:HD11	4:I:78:TYR:HA	1.80	0.62
4:I:73:LEU:HD13	4:I:79:LEU:C	2.21	0.62
4:G:46:PHE:CD1	4:G:137:THR:HG21	2.28	0.62
4:J:122:GLU:O	4:J:123:LEU:HB3	2.00	0.62
4:G:137:THR:HG22	4:G:138:LYS:N	2.15	0.61
5:A:304:PGW:H8	5:A:306:PGW:H8	1.81	0.61
2:B:168:PHE:HB3	2:B:171:PRO:HG3	1.83	0.61
2:E:101:ASN:HD22	2:E:139:LYS:HA	1.67	0.60
2:B:110:LEU:O	2:B:114:THR:OG1	2.20	0.60
2:E:168:PHE:HB3	2:E:171:PRO:HG3	1.83	0.59
5:A:304:PGW:H12	4:G:106:LEU:HD21	1.83	0.59
2:E:110:LEU:O	2:E:114:THR:OG1	2.20	0.59
2:E:67:PHE:HB2	2:E:72:ILE:HD11	1.85	0.58
2:B:101:ASN:HD22	2:B:139:LYS:HA	1.67	0.58
4:G:46:PHE:HD1	4:G:138:LYS:O	1.86	0.58
2:B:67:PHE:HB2	2:B:72:ILE:HD11	1.85	0.57
2:B:99:ASP:N	2:B:99:ASP:OD1	2.35	0.56
2:E:151:ARG:NH1	2:E:171:PRO:O	2.39	0.56
4:I:70:ASP:O	4:I:71:ILE:HB	2.04	0.56
4:J:123:LEU:HD23	4:J:123:LEU:O	2.05	0.56
4:J:133:THR:OG1	4:J:135:GLN:NE2	2.38	0.56
4:L:101:ILE:HG22	4:L:110:GLN:HE21	1.70	0.56
4:G:138:LYS:HG3	4:G:139:SER:N	2.21	0.55
2:B:86:ARG:NH1	2:B:164:ASP:OD2	2.40	0.55
2:B:151:ARG:NH1	2:B:171:PRO:O	2.39	0.54
2:E:86:ARG:NH1	2:E:164:ASP:OD2	2.40	0.54
4:K:133:THR:OG1	4:K:135:GLN:NE2	2.40	0.54
4:J:70:ASP:HB2	4:J:83:THR:HG22	1.89	0.54
4:H:121:PRO:HD2	4:H:123:LEU:HB2	1.89	0.54
2:E:191:ASN:ND2	2:E:196:VAL:O	2.41	0.54
4:J:55:ARG:NH2	5:J:201:PGW:O14	2.41	0.54
2:B:191:ASN:ND2	2:B:196:VAL:O	2.41	0.54
2:B:45:ILE:HD12	2:B:218:LEU:HD23	1.90	0.53
4:G:55:ARG:NH2	5:G:201:PGW:O14	2.41	0.53
2:E:45:ILE:HD12	2:E:218:LEU:HD23	1.90	0.53
4:I:119:GLU:HB2	4:I:121:PRO:CD	2.38	0.53
1:A:187:SER:O	1:A:191:ASN:ND2	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:56:GLY:O	2:B:84:ARG:NH2	2.42	0.53
4:I:119:GLU:CA	4:I:121:PRO:HD3	2.37	0.53
2:E:56:GLY:O	2:E:84:ARG:NH2	2.42	0.52
1:D:187:SER:O	1:D:191:ASN:ND2	2.42	0.52
4:H:88:GLN:O	4:H:91:ASN:ND2	2.43	0.52
4:I:119:GLU:CB	4:I:121:PRO:CD	2.86	0.52
1:A:98:GLU:OE2	1:A:205:LYS:NZ	2.43	0.52
1:D:98:GLU:OE2	1:D:205:LYS:NZ	2.43	0.52
4:J:39:THR:HG22	4:J:87:GLU:HA	1.92	0.51
2:E:228:SER:OG	2:E:229:ALA:N	2.44	0.51
2:B:228:SER:OG	2:B:229:ALA:N	2.44	0.51
4:H:133:THR:OG1	4:H:135:GLN:NE2	2.43	0.51
2:E:45:ILE:HD11	2:E:47:LYS:HD3	1.93	0.51
4:G:137:THR:CG2	4:G:138:LYS:N	2.73	0.51
1:A:73:GLN:HG2	5:A:306:PGW:H24A	1.91	0.51
4:I:122:GLU:O	4:I:123:LEU:HB3	2.11	0.51
2:B:45:ILE:HD11	2:B:47:LYS:HD3	1.93	0.51
4:H:97:SER:HA	4:H:117:GLY:H	1.74	0.51
4:H:36:THR:OG1	4:H:37:GLU:N	2.44	0.51
4:J:128:LEU:HD23	4:J:132:ASP:HB3	1.93	0.51
4:K:88:GLN:O	4:K:91:ASN:ND2	2.45	0.50
5:A:304:PGW:H24A	1:D:73:GLN:HG2	1.92	0.50
3:C:66:LYS:HG3	3:C:72:VAL:HG23	1.94	0.50
3:F:23:ASP:OD1	3:F:23:ASP:N	2.44	0.50
4:J:42:LEU:HG	4:J:128:LEU:HD22	1.93	0.49
4:J:98:SER:HB3	4:J:115:ASN:HB3	1.93	0.49
3:F:66:LYS:HG3	3:F:72:VAL:HG23	1.94	0.49
3:C:23:ASP:OD1	3:C:23:ASP:N	2.44	0.49
4:H:142:VAL:O	4:H:143:LEU:HB3	2.12	0.48
5:A:304:PGW:H07	4:K:107:LEU:HD21	1.94	0.48
4:K:144:GLU:OE2	4:L:103:THR:OG1	2.32	0.48
5:A:306:PGW:H12	4:J:106:LEU:HD21	1.96	0.48
5:A:306:PGW:H07	4:H:107:LEU:HD21	1.97	0.47
5:D:302:PGW:H01	5:D:303:PGW:H20	1.96	0.47
4:J:94:PRO:O	4:J:97:SER:OG	2.28	0.47
4:H:144:GLU:OE2	4:I:103:THR:OG1	2.31	0.47
4:I:94:PRO:HG2	4:I:118:PHE:HA	1.96	0.47
5:A:301:PGW:H01	5:A:302:PGW:H20	1.96	0.47
4:H:144:GLU:HG3	4:I:102:ARG:HG3	1.97	0.47
4:K:145:ASP:N	4:K:145:ASP:OD1	2.46	0.47
5:D:303:PGW:O12	5:D:303:PGW:OAE	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:120:ASP:OD1	4:G:125:THR:OG1	2.34	0.46
5:A:301:PGW:H02	1:D:57:LEU:HD21	1.98	0.46
4:G:98:SER:HB3	4:G:115:ASN:HB3	1.98	0.46
3:C:10:THR:HG1	3:C:13:THR:HG1	1.61	0.45
4:G:63:VAL:HB	4:L:73:LEU:HD22	1.98	0.45
5:A:306:PGW:H07A	4:I:106:LEU:HD11	1.99	0.45
5:A:302:PGW:O12	5:A:302:PGW:OAE	2.31	0.45
4:H:42:LEU:HD21	4:H:134:ILE:HG13	1.97	0.45
5:A:304:PGW:H08A	4:K:107:LEU:HD11	1.98	0.45
4:I:73:LEU:HD12	4:I:73:LEU:C	2.34	0.45
4:G:144:GLU:OE2	4:H:103:THR:OG1	2.29	0.45
1:A:34:LYS:HA	1:A:34:LYS:HD3	1.76	0.45
1:A:57:LEU:HD21	5:D:302:PGW:H02	1.99	0.45
4:J:144:GLU:OE2	4:K:103:THR:OG1	2.32	0.44
4:H:104:SER:O	4:H:104:SER:OG	2.36	0.44
4:H:129:LYS:HD3	4:H:129:LYS:HA	1.87	0.44
2:B:43:SER:HB2	2:E:176:ASP:HB2	1.99	0.43
3:C:10:THR:OG1	3:C:13:THR:OG1	2.34	0.43
3:F:21:ASP:HB2	3:F:49:ARG:HH22	1.83	0.43
1:D:98:GLU:OE2	1:D:254:THR:OG1	2.33	0.43
4:J:129:LYS:HG2	4:J:130:ASP:H	1.84	0.43
1:D:34:LYS:HD3	1:D:34:LYS:HA	1.75	0.43
4:H:109:GLU:HG3	4:H:110:GLN:H	1.82	0.43
2:B:255:ARG:HH12	3:F:89:ASN:ND2	2.16	0.43
5:D:303:PGW:H6	5:D:303:PGW:H3	1.89	0.43
4:K:104:SER:O	4:K:104:SER:OG	2.34	0.43
4:I:70:ASP:CB	4:I:83:THR:HB	2.49	0.42
4:G:94:PRO:O	4:G:97:SER:OG	2.29	0.42
4:L:94:PRO:HG2	4:L:118:PHE:HA	2.00	0.42
5:A:305:PGW:H10	5:A:305:PGW:H08A	1.85	0.42
3:C:21:ASP:HB2	3:C:49:ARG:HH22	1.83	0.42
5:D:301:PGW:H10	5:D:301:PGW:H08A	1.85	0.42
3:F:36:VAL:O	3:F:68:GLN:NE2	2.52	0.42
3:C:36:VAL:O	3:C:68:GLN:NE2	2.52	0.42
1:D:140:LEU:HD23	1:D:140:LEU:HA	1.93	0.42
3:F:10:THR:HG1	3:F:13:THR:HG1	1.65	0.42
4:G:42:LEU:HD22	4:G:128:LEU:HD22	2.01	0.42
4:L:70:ASP:HB3	4:L:83:THR:HB	2.00	0.42
4:J:99:LEU:HD22	4:J:112:LEU:HD22	2.01	0.42
5:D:303:PGW:H25	5:D:303:PGW:H15A	1.88	0.42
4:H:142:VAL:O	4:H:143:LEU:CB	2.65	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:121:PRO:HG2	4:H:123:LEU:HD23	2.01	0.41
4:I:119:GLU:HB2	4:I:121:PRO:HD3	1.96	0.41
4:I:121:PRO:O	4:I:122:GLU:O	2.37	0.41
4:K:42:LEU:HD11	4:K:128:LEU:HD13	2.02	0.41
2:E:241:ARG:HD2	2:E:241:ARG:HA	1.84	0.41
4:G:104:SER:O	4:G:104:SER:OG	2.39	0.41
3:F:64:LEU:HD23	3:F:64:LEU:HA	1.91	0.41
2:B:146:SER:O	2:B:148:GLY:N	2.53	0.41
4:I:73:LEU:HD11	4:I:79:LEU:N	2.35	0.41
4:K:42:LEU:HD21	4:K:134:ILE:HG13	2.02	0.41
5:G:201:PGW:H2	5:G:201:PGW:H5A	1.91	0.41
4:G:100:SER:HA	4:G:138:LYS:HB3	2.02	0.41
2:E:146:SER:O	2:E:148:GLY:N	2.54	0.40
4:J:95:ASP:OD1	4:J:95:ASP:N	2.54	0.40
4:L:60:ILE:HD12	4:L:65:VAL:HG11	2.04	0.40
1:A:98:GLU:OE2	1:A:254:THR:OG1	2.33	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	255/260 (98%)	249 (98%)	6 (2%)	0	100	100
1	D	255/260 (98%)	249 (98%)	6 (2%)	0	100	100
2	B	261/269 (97%)	225 (86%)	35 (13%)	1 (0%)	34	66
2	E	261/269 (97%)	225 (86%)	35 (13%)	1 (0%)	34	66
3	C	92/97 (95%)	81 (88%)	11 (12%)	0	100	100
3	F	92/97 (95%)	81 (88%)	11 (12%)	0	100	100
4	G	140/183 (76%)	113 (81%)	25 (18%)	2 (1%)	11	36

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	H	140/183 (76%)	116 (83%)	24 (17%)	0	100	100
4	I	140/183 (76%)	117 (84%)	18 (13%)	5 (4%)	3	14
4	J	140/183 (76%)	118 (84%)	20 (14%)	2 (1%)	11	36
4	K	140/183 (76%)	119 (85%)	21 (15%)	0	100	100
4	L	140/183 (76%)	121 (86%)	18 (13%)	1 (1%)	22	54
All	All	2056/2350 (88%)	1814 (88%)	230 (11%)	12 (1%)	29	58

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	I	70	ASP
4	I	72	THR
4	I	122	GLU
2	B	147	GLY
2	E	147	GLY
4	G	136	ASP
4	I	138	LYS
4	L	138	LYS
4	J	121	PRO
4	G	137	THR
4	J	138	LYS
4	I	71	ILE

5.3.2 Protein sidechains [i](#)

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	206/209 (99%)	205 (100%)	1 (0%)	88	96
1	D	206/209 (99%)	205 (100%)	1 (0%)	88	96
2	B	215/220 (98%)	214 (100%)	1 (0%)	88	96
2	E	215/220 (98%)	214 (100%)	1 (0%)	88	96
3	C	81/84 (96%)	77 (95%)	4 (5%)	25	57

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	F	81/84 (96%)	77 (95%)	4 (5%)	25	57
4	G	120/150 (80%)	118 (98%)	2 (2%)	60	86
4	H	120/150 (80%)	118 (98%)	2 (2%)	60	86
4	I	100/150 (67%)	98 (98%)	2 (2%)	55	82
4	J	120/150 (80%)	117 (98%)	3 (2%)	47	78
4	K	120/150 (80%)	120 (100%)	0	100	100
4	L	100/150 (67%)	99 (99%)	1 (1%)	76	92
All	All	1684/1926 (87%)	1662 (99%)	22 (1%)	70	90

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	111	ARG
2	B	25	ASP
3	C	13	THR
3	C	49	ARG
3	C	79	ASP
3	C	86	LYS
1	D	111	ARG
2	E	25	ASP
3	F	13	THR
3	F	49	ARG
3	F	79	ASP
3	F	86	LYS
4	G	136	ASP
4	G	139	SER
4	H	76	LYS
4	H	118	PHE
4	I	73	LEU
4	I	122	GLU
4	J	83	THR
4	J	95	ASP
4	J	122	GLU
4	L	123	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	29	ASN

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Mol	Chain	Res	Type
1	A	50	ASN
1	A	190	GLN
1	A	191	ASN
2	B	7	ASN
2	B	101	ASN
2	B	105	ASN
2	B	226	HIS
1	D	29	ASN
1	D	50	ASN
1	D	190	GLN
1	D	191	ASN
2	E	7	ASN
2	E	57	GLN
2	E	101	ASN
2	E	105	ASN
2	E	191	ASN
2	E	226	HIS
3	F	89	ASN
4	G	88	GLN
4	H	115	ASN
4	H	135	GLN
4	J	135	GLN
4	K	115	ASN
4	K	135	GLN
4	K	149	GLN
4	L	110	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry

12 ligands are modelled in this entry.

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
5	PGW	A	303	-	50,50,50	1.10	3 (6%)	53,56,56	1.61	3 (5%)
5	PGW	D	302	-	50,50,50	1.11	2 (4%)	53,56,56	1.56	4 (7%)
5	PGW	A	304	-	50,50,50	1.09	3 (6%)	53,56,56	1.56	3 (5%)
5	PGW	J	201	-	50,50,50	1.10	3 (6%)	53,56,56	1.60	3 (5%)
5	PGW	A	302	-	50,50,50	1.08	3 (6%)	53,56,56	1.48	3 (5%)
5	PGW	A	301	-	50,50,50	1.11	2 (4%)	53,56,56	1.56	4 (7%)
5	PGW	A	306	-	50,50,50	1.09	3 (6%)	53,56,56	1.56	3 (5%)
5	PGW	D	301	-	50,50,50	1.09	3 (6%)	53,56,56	1.48	3 (5%)
5	PGW	A	305	-	50,50,50	1.08	3 (6%)	53,56,56	1.48	3 (5%)
5	PGW	D	304	-	50,50,50	1.10	3 (6%)	53,56,56	1.61	3 (5%)
5	PGW	G	201	-	50,50,50	1.09	3 (6%)	53,56,56	1.59	3 (5%)
5	PGW	D	303	-	50,50,50	1.08	3 (6%)	53,56,56	1.48	3 (5%)

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
5	PGW	A	303	-	-	32/55/55/55	-
5	PGW	D	302	-	-	27/55/55/55	-
5	PGW	A	304	-	-	30/55/55/55	-
5	PGW	J	201	-	-	40/55/55/55	-
5	PGW	A	302	-	-	31/55/55/55	-
5	PGW	A	301	-	-	27/55/55/55	-
5	PGW	A	306	-	-	30/55/55/55	-
5	PGW	D	301	-	-	30/55/55/55	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	PGW	A	305	-	-	31/55/55/55	-
5	PGW	D	304	-	-	32/55/55/55	-
5	PGW	G	201	-	-	40/55/55/55	-
5	PGW	D	303	-	-	31/55/55/55	-

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	301	PGW	O03-C19	3.13	1.42	1.33
5	D	302	PGW	O03-C19	3.11	1.42	1.33
5	D	304	PGW	O03-C19	2.96	1.42	1.33
5	A	303	PGW	O03-C19	2.96	1.42	1.33
5	A	301	PGW	O01-C1	2.94	1.42	1.34
5	D	302	PGW	O01-C1	2.94	1.42	1.34
5	A	302	PGW	O03-C19	2.91	1.41	1.33
5	D	303	PGW	O03-C19	2.91	1.41	1.33
5	A	304	PGW	O03-C19	2.83	1.41	1.33
5	A	306	PGW	O03-C19	2.83	1.41	1.33
5	G	201	PGW	O03-C19	2.82	1.41	1.33
5	J	201	PGW	O03-C19	2.82	1.41	1.33
5	A	302	PGW	O01-C1	2.80	1.42	1.34
5	D	303	PGW	O01-C1	2.78	1.42	1.34
5	D	301	PGW	O03-C19	2.77	1.41	1.33
5	A	305	PGW	O03-C19	2.75	1.41	1.33
5	D	301	PGW	O01-C02	-2.74	1.39	1.46
5	A	305	PGW	O01-C02	-2.70	1.39	1.46
5	A	304	PGW	O01-C1	2.69	1.41	1.34
5	A	306	PGW	O01-C1	2.69	1.41	1.34
5	G	201	PGW	O01-C1	2.69	1.41	1.34
5	J	201	PGW	O01-C1	2.69	1.41	1.34
5	A	303	PGW	O01-C02	-2.66	1.39	1.46
5	D	301	PGW	O01-C1	2.64	1.41	1.34
5	A	303	PGW	O01-C1	2.64	1.41	1.34
5	D	304	PGW	O01-C1	2.64	1.41	1.34
5	D	304	PGW	O01-C02	-2.63	1.40	1.46
5	A	305	PGW	O01-C1	2.63	1.41	1.34
5	J	201	PGW	O01-C02	-2.50	1.40	1.46
5	A	304	PGW	O01-C02	-2.49	1.40	1.46
5	A	306	PGW	O01-C02	-2.49	1.40	1.46
5	G	201	PGW	O01-C02	-2.47	1.40	1.46
5	D	303	PGW	O01-C02	-2.26	1.40	1.46
5	A	302	PGW	O01-C02	-2.26	1.40	1.46

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	304	PGW	C21-C20-C19	-9.17	80.28	113.62
5	A	303	PGW	C21-C20-C19	-9.16	80.32	113.62
5	A	304	PGW	C21-C20-C19	-8.90	81.26	113.62
5	A	306	PGW	C21-C20-C19	-8.89	81.29	113.62
5	J	201	PGW	C21-C20-C19	-8.87	81.35	113.62
5	G	201	PGW	C21-C20-C19	-8.87	81.36	113.62
5	A	301	PGW	C21-C20-C19	-8.10	84.17	113.62
5	D	302	PGW	C21-C20-C19	-8.09	84.19	113.62
5	A	302	PGW	C21-C20-C19	-8.03	84.42	113.62
5	D	303	PGW	C21-C20-C19	-8.03	84.42	113.62
5	A	305	PGW	C21-C20-C19	-7.96	84.66	113.62
5	D	301	PGW	C21-C20-C19	-7.96	84.66	113.62
5	D	302	PGW	O01-C1-C2	4.28	120.73	111.50
5	A	301	PGW	O01-C1-C2	4.25	120.67	111.50
5	G	201	PGW	O01-C1-C2	4.10	120.34	111.50
5	J	201	PGW	O01-C1-C2	4.10	120.34	111.50
5	A	304	PGW	O01-C1-C2	3.67	119.41	111.50
5	A	306	PGW	O01-C1-C2	3.67	119.41	111.50
5	A	303	PGW	O01-C1-C2	3.62	119.30	111.50
5	D	304	PGW	O01-C1-C2	3.61	119.27	111.50
5	A	302	PGW	O01-C1-C2	3.46	118.95	111.50
5	D	303	PGW	O01-C1-C2	3.46	118.95	111.50
5	D	301	PGW	O01-C1-C2	3.30	118.61	111.50
5	A	305	PGW	O01-C1-C2	3.29	118.59	111.50
5	D	302	PGW	O03-C19-C20	2.97	121.22	111.91
5	A	301	PGW	O03-C19-C20	2.96	121.18	111.91
5	D	304	PGW	O03-C19-C20	2.71	120.41	111.91
5	A	303	PGW	O03-C19-C20	2.70	120.37	111.91
5	A	304	PGW	O03-C19-C20	2.56	119.95	111.91
5	A	306	PGW	O03-C19-C20	2.56	119.95	111.91
5	G	201	PGW	O03-C19-C20	2.44	119.55	111.91
5	J	201	PGW	O03-C19-C20	2.42	119.51	111.91
5	A	302	PGW	O03-C19-C20	2.29	119.08	111.91
5	D	303	PGW	O03-C19-C20	2.29	119.08	111.91
5	D	301	PGW	O03-C19-C20	2.20	118.82	111.91
5	A	305	PGW	O03-C19-C20	2.19	118.78	111.91
5	D	302	PGW	C02-O01-C1	2.02	122.76	117.79
5	A	301	PGW	C02-O01-C1	2.01	122.75	117.79

There are no chirality outliers.

All (381) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	301	PGW	C04-C05-CAD-OAE
5	A	301	PGW	C03-O11-P-O13
5	A	301	PGW	C03-O11-P-O14
5	A	301	PGW	C04-O12-P-O13
5	A	301	PGW	C04-O12-P-O14
5	A	301	PGW	C2-C1-O01-C02
5	A	302	PGW	O12-C04-C05-CAD
5	A	303	PGW	C04-O12-P-O13
5	A	303	PGW	O12-C04-C05-CAD
5	A	304	PGW	C03-O11-P-O13
5	A	304	PGW	C03-O11-P-O14
5	A	305	PGW	C04-C05-CAD-OAE
5	A	305	PGW	C03-O11-P-O12
5	A	306	PGW	C03-O11-P-O13
5	A	306	PGW	C03-O11-P-O14
5	D	301	PGW	C04-C05-CAD-OAE
5	D	301	PGW	C03-O11-P-O12
5	D	302	PGW	C04-C05-CAD-OAE
5	D	302	PGW	C03-O11-P-O13
5	D	302	PGW	C03-O11-P-O14
5	D	302	PGW	C04-O12-P-O13
5	D	302	PGW	C04-O12-P-O14
5	D	302	PGW	C2-C1-O01-C02
5	D	303	PGW	O12-C04-C05-CAD
5	D	304	PGW	C04-O12-P-O13
5	D	304	PGW	O12-C04-C05-CAD
5	G	201	PGW	C03-O11-P-O13
5	G	201	PGW	C03-O11-P-O14
5	G	201	PGW	C2-C1-O01-C02
5	J	201	PGW	C03-O11-P-O13
5	J	201	PGW	C03-O11-P-O14
5	J	201	PGW	C2-C1-O01-C02
5	A	302	PGW	O04-C19-O03-C01
5	D	303	PGW	O04-C19-O03-C01
5	A	302	PGW	C20-C19-O03-C01
5	D	303	PGW	C20-C19-O03-C01
5	A	304	PGW	O04-C19-O03-C01
5	A	305	PGW	O04-C19-O03-C01
5	A	306	PGW	O04-C19-O03-C01
5	D	301	PGW	O04-C19-O03-C01
5	A	301	PGW	O02-C1-O01-C02
5	A	302	PGW	O02-C1-O01-C02
5	D	302	PGW	O02-C1-O01-C02

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Mol	Chain	Res	Type	Atoms
5	D	303	PGW	O02-C1-O01-C02
5	G	201	PGW	O02-C1-O01-C02
5	J	201	PGW	O02-C1-O01-C02
5	A	304	PGW	C20-C19-O03-C01
5	A	305	PGW	C20-C19-O03-C01
5	A	306	PGW	C20-C19-O03-C01
5	D	301	PGW	C20-C19-O03-C01
5	A	301	PGW	O12-C04-C05-OAF
5	A	302	PGW	O12-C04-C05-OAF
5	A	303	PGW	O12-C04-C05-OAF
5	A	304	PGW	O12-C04-C05-OAF
5	A	305	PGW	O12-C04-C05-OAF
5	A	306	PGW	O12-C04-C05-OAF
5	D	301	PGW	O12-C04-C05-OAF
5	D	302	PGW	O12-C04-C05-OAF
5	D	303	PGW	O12-C04-C05-OAF
5	D	304	PGW	O12-C04-C05-OAF
5	A	302	PGW	C2-C1-O01-C02
5	A	303	PGW	C2-C1-O01-C02
5	D	303	PGW	C2-C1-O01-C02
5	D	304	PGW	C2-C1-O01-C02
5	A	305	PGW	O12-C04-C05-CAD
5	D	301	PGW	O12-C04-C05-CAD
5	A	303	PGW	C19-C20-C21-C22
5	G	201	PGW	C20-C19-O03-C01
5	J	201	PGW	C20-C19-O03-C01
5	D	304	PGW	C19-C20-C21-C22
5	G	201	PGW	C19-C20-C21-C22
5	J	201	PGW	C19-C20-C21-C22
5	A	303	PGW	O02-C1-O01-C02
5	D	304	PGW	O02-C1-O01-C02
5	A	305	PGW	C1-C2-C3-C4
5	D	301	PGW	C1-C2-C3-C4
5	A	301	PGW	C03-O11-P-O12
5	A	301	PGW	C04-O12-P-O11
5	A	303	PGW	C04-O12-P-O11
5	A	304	PGW	C03-O11-P-O12
5	A	306	PGW	C03-O11-P-O12
5	D	302	PGW	C03-O11-P-O12
5	D	302	PGW	C04-O12-P-O11
5	D	304	PGW	C04-O12-P-O11
5	G	201	PGW	C03-O11-P-O12

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Mol	Chain	Res	Type	Atoms
5	J	201	PGW	C03-O11-P-O12
5	A	301	PGW	O12-C04-C05-CAD
5	A	304	PGW	O12-C04-C05-CAD
5	A	306	PGW	O12-C04-C05-CAD
5	D	302	PGW	O12-C04-C05-CAD
5	A	301	PGW	C1-C2-C3-C4
5	D	302	PGW	C1-C2-C3-C4
5	G	201	PGW	C20-C21-C22-C23
5	J	201	PGW	C20-C21-C22-C23
5	G	201	PGW	C24-C25-C26-C27
5	J	201	PGW	C24-C25-C26-C27
5	G	201	PGW	O04-C19-O03-C01
5	J	201	PGW	O04-C19-O03-C01
5	G	201	PGW	C4-C5-C6-C7
5	J	201	PGW	C4-C5-C6-C7
5	A	303	PGW	C21-C22-C23-C24
5	D	304	PGW	C21-C22-C23-C24
5	A	302	PGW	C27-C15-C16-C17
5	D	303	PGW	C27-C15-C16-C17
5	A	302	PGW	C04-C05-CAD-OAE
5	D	303	PGW	C04-C05-CAD-OAE
5	G	201	PGW	C04-C05-CAD-OAE
5	J	201	PGW	C04-C05-CAD-OAE
5	A	302	PGW	C22-C23-C24-C25
5	G	201	PGW	C6-C7-C8-C9
5	J	201	PGW	C6-C7-C8-C9
5	A	305	PGW	C19-C20-C21-C22
5	D	301	PGW	C19-C20-C21-C22
5	A	301	PGW	C06-C07-C08-C09
5	D	302	PGW	C06-C07-C08-C09
5	D	303	PGW	C22-C23-C24-C25
5	G	201	PGW	C16-C15-C27-C26
5	J	201	PGW	C16-C15-C27-C26
5	A	305	PGW	C4-C5-C6-C7
5	D	301	PGW	C4-C5-C6-C7
5	A	301	PGW	C21-C22-C23-C24
5	D	302	PGW	C21-C22-C23-C24
5	A	302	PGW	C06-C07-C08-C09
5	A	304	PGW	C16-C15-C27-C26
5	A	304	PGW	C22-C23-C24-C25
5	A	304	PGW	C24-C25-C26-C27
5	A	306	PGW	C16-C15-C27-C26

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Mol	Chain	Res	Type	Atoms
5	A	306	PGW	C22-C23-C24-C25
5	A	306	PGW	C24-C25-C26-C27
5	D	303	PGW	C06-C07-C08-C09
5	G	201	PGW	C08-C09-C11-C12
5	J	201	PGW	C08-C09-C11-C12
5	A	302	PGW	C2-C3-C4-C5
5	D	303	PGW	C2-C3-C4-C5
5	A	301	PGW	C16-C15-C27-C26
5	D	302	PGW	C16-C15-C27-C26
5	G	201	PGW	C22-C23-C24-C25
5	J	201	PGW	C22-C23-C24-C25
5	A	304	PGW	C23-C24-C25-C26
5	A	306	PGW	C23-C24-C25-C26
5	A	301	PGW	C20-C21-C22-C23
5	D	302	PGW	C20-C21-C22-C23
5	A	302	PGW	OAF-C05-CAD-OAE
5	D	303	PGW	OAF-C05-CAD-OAE
5	A	303	PGW	C20-C21-C22-C23
5	D	304	PGW	C20-C21-C22-C23
5	G	201	PGW	C3-C4-C5-C6
5	J	201	PGW	C3-C4-C5-C6
5	A	304	PGW	C27-C15-C16-C17
5	A	306	PGW	C27-C15-C16-C17
5	G	201	PGW	C16-C17-C18-C28
5	J	201	PGW	C16-C17-C18-C28
5	A	303	PGW	C2-C3-C4-C5
5	A	302	PGW	C6-C7-C8-C9
5	D	303	PGW	C6-C7-C8-C9
5	D	304	PGW	C2-C3-C4-C5
5	G	201	PGW	C27-C15-C16-C17
5	J	201	PGW	C27-C15-C16-C17
5	A	305	PGW	C22-C23-C24-C25
5	D	301	PGW	C22-C23-C24-C25
5	G	201	PGW	C5-C6-C7-C8
5	J	201	PGW	C5-C6-C7-C8
5	A	302	PGW	C23-C24-C25-C26
5	D	303	PGW	C23-C24-C25-C26
5	A	304	PGW	C19-C20-C21-C22
5	A	306	PGW	C19-C20-C21-C22
5	A	303	PGW	C06-C07-C08-C09
5	D	304	PGW	C06-C07-C08-C09
5	A	305	PGW	C6-C7-C8-C9

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Mol	Chain	Res	Type	Atoms
5	D	301	PGW	C6-C7-C8-C9
5	A	305	PGW	C16-C17-C18-C28
5	D	301	PGW	C16-C17-C18-C28
5	A	303	PGW	C20-C19-O03-C01
5	D	304	PGW	C20-C19-O03-C01
5	A	302	PGW	C01-C02-C03-O11
5	A	303	PGW	C01-C02-C03-O11
5	A	304	PGW	C01-C02-C03-O11
5	A	305	PGW	C01-C02-C03-O11
5	A	306	PGW	C01-C02-C03-O11
5	D	301	PGW	C01-C02-C03-O11
5	D	303	PGW	C01-C02-C03-O11
5	D	304	PGW	C01-C02-C03-O11
5	G	201	PGW	C01-C02-C03-O11
5	J	201	PGW	C01-C02-C03-O11
5	A	303	PGW	C4-C5-C6-C7
5	D	304	PGW	C4-C5-C6-C7
5	A	304	PGW	C6-C7-C8-C9
5	A	306	PGW	C6-C7-C8-C9
5	A	302	PGW	C16-C15-C27-C26
5	D	303	PGW	C16-C15-C27-C26
5	G	201	PGW	O03-C01-C02-C03
5	J	201	PGW	O03-C01-C02-C03
5	A	305	PGW	C27-C15-C16-C17
5	D	301	PGW	C27-C15-C16-C17
5	A	301	PGW	OAF-C05-CAD-OAE
5	D	302	PGW	OAF-C05-CAD-OAE
5	A	304	PGW	C18-C28-C30-C29
5	A	306	PGW	C18-C28-C30-C29
5	D	303	PGW	C16-C17-C18-C28
5	A	302	PGW	C16-C17-C18-C28
5	A	301	PGW	C4-C5-C6-C7
5	D	302	PGW	C4-C5-C6-C7
5	A	302	PGW	C01-C02-O01-C1
5	D	303	PGW	C01-C02-O01-C1
5	A	302	PGW	C18-C28-C30-C29
5	D	303	PGW	C18-C28-C30-C29
5	A	303	PGW	C7-C8-C9-C10
5	D	304	PGW	C7-C8-C9-C10
5	G	201	PGW	O01-C1-C2-C3
5	J	201	PGW	O01-C1-C2-C3
5	A	305	PGW	O03-C01-C02-O01

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Mol	Chain	Res	Type	Atoms
5	D	301	PGW	O03-C01-C02-O01
5	G	201	PGW	O03-C01-C02-O01
5	J	201	PGW	O03-C01-C02-O01
5	A	303	PGW	O04-C19-O03-C01
5	D	304	PGW	O04-C19-O03-C01
5	D	302	PGW	C24-C25-C26-C27
5	A	301	PGW	C24-C25-C26-C27
5	D	304	PGW	C16-C17-C18-C28
5	A	303	PGW	C04-C05-CAD-OAE
5	D	304	PGW	C04-C05-CAD-OAE
5	A	303	PGW	C16-C17-C18-C28
5	A	304	PGW	C5-C6-C7-C8
5	A	306	PGW	C5-C6-C7-C8
5	A	305	PGW	C21-C22-C23-C24
5	D	301	PGW	C21-C22-C23-C24
5	A	303	PGW	C1-C2-C3-C4
5	D	304	PGW	C1-C2-C3-C4
5	A	302	PGW	C21-C22-C23-C24
5	D	303	PGW	C21-C22-C23-C24
5	A	305	PGW	OAF-C05-CAD-OAE
5	D	301	PGW	OAF-C05-CAD-OAE
5	A	301	PGW	O01-C02-C03-O11
5	A	305	PGW	O01-C02-C03-O11
5	D	301	PGW	O01-C02-C03-O11
5	D	302	PGW	O01-C02-C03-O11
5	A	304	PGW	C20-C21-C22-C23
5	A	306	PGW	C20-C21-C22-C23
5	A	302	PGW	O03-C01-C02-O01
5	D	303	PGW	O03-C01-C02-O01
5	A	301	PGW	C05-C04-O12-P
5	A	302	PGW	C05-C04-O12-P
5	A	305	PGW	C02-C03-O11-P
5	D	301	PGW	C02-C03-O11-P
5	D	302	PGW	C05-C04-O12-P
5	D	303	PGW	C05-C04-O12-P
5	G	201	PGW	C05-C04-O12-P
5	J	201	PGW	C05-C04-O12-P
5	G	201	PGW	C06-C07-C08-C09
5	J	201	PGW	C06-C07-C08-C09
5	A	304	PGW	C7-C8-C9-C10
5	A	306	PGW	C7-C8-C9-C10
5	A	305	PGW	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
5	D	301	PGW	C15-C16-C17-C18
5	A	305	PGW	C05-C04-O12-P
5	D	301	PGW	C05-C04-O12-P
5	A	302	PGW	O01-C02-C03-O11
5	A	303	PGW	O01-C02-C03-O11
5	A	304	PGW	O01-C02-C03-O11
5	A	306	PGW	O01-C02-C03-O11
5	D	303	PGW	O01-C02-C03-O11
5	D	304	PGW	O01-C02-C03-O11
5	G	201	PGW	O01-C02-C03-O11
5	J	201	PGW	O01-C02-C03-O11
5	A	304	PGW	C1-C2-C3-C4
5	A	306	PGW	C1-C2-C3-C4
5	A	301	PGW	C5-C6-C7-C8
5	A	304	PGW	C2-C3-C4-C5
5	A	306	PGW	C2-C3-C4-C5
5	D	302	PGW	C5-C6-C7-C8
5	A	304	PGW	C4-C5-C6-C7
5	A	306	PGW	C4-C5-C6-C7
5	A	302	PGW	C03-O11-P-O12
5	D	303	PGW	C03-O11-P-O12
5	G	201	PGW	C25-C26-C27-C15
5	J	201	PGW	C25-C26-C27-C15
5	A	304	PGW	C05-C04-O12-P
5	A	306	PGW	C05-C04-O12-P
5	G	201	PGW	C02-C03-O11-P
5	J	201	PGW	C02-C03-O11-P
5	A	302	PGW	C04-O12-P-O14
5	A	303	PGW	C03-O11-P-O13
5	A	303	PGW	C04-O12-P-O14
5	A	305	PGW	C03-O11-P-O13
5	D	301	PGW	C03-O11-P-O13
5	D	303	PGW	C04-O12-P-O14
5	D	304	PGW	C03-O11-P-O13
5	D	304	PGW	C04-O12-P-O14
5	G	201	PGW	C04-O12-P-O14
5	J	201	PGW	C04-O12-P-O14
5	G	201	PGW	C21-C22-C23-C24
5	D	304	PGW	C08-C09-C11-C12
5	J	201	PGW	C21-C22-C23-C24
5	A	303	PGW	C08-C09-C11-C12
5	A	302	PGW	O03-C01-C02-C03

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Mol	Chain	Res	Type	Atoms
5	D	303	PGW	O03-C01-C02-C03
5	G	201	PGW	C23-C24-C25-C26
5	J	201	PGW	C23-C24-C25-C26
5	A	304	PGW	C06-C07-C08-C09
5	A	306	PGW	C06-C07-C08-C09
5	J	201	PGW	C07-C08-C09-C11
5	G	201	PGW	C07-C08-C09-C11
5	A	301	PGW	C01-C02-O01-C1
5	D	302	PGW	C01-C02-O01-C1
5	D	302	PGW	C22-C23-C24-C25
5	A	301	PGW	C22-C23-C24-C25
5	A	305	PGW	O03-C01-C02-C03
5	D	301	PGW	O03-C01-C02-C03
5	D	304	PGW	C24-C25-C26-C27
5	G	201	PGW	OAF-C05-CAD-OAE
5	J	201	PGW	OAF-C05-CAD-OAE
5	A	303	PGW	C24-C25-C26-C27
5	A	305	PGW	C11-C12-C13-C14
5	D	301	PGW	C11-C12-C13-C14
5	D	303	PGW	C08-C09-C11-C12
5	A	302	PGW	C08-C09-C11-C12
5	A	303	PGW	C25-C26-C27-C15
5	D	304	PGW	C25-C26-C27-C15
5	A	302	PGW	C20-C21-C22-C23
5	D	303	PGW	C20-C21-C22-C23
5	G	201	PGW	O02-C1-C2-C3
5	J	201	PGW	O02-C1-C2-C3
5	A	303	PGW	C03-O11-P-O12
5	D	304	PGW	C03-O11-P-O12
5	A	305	PGW	C2-C3-C4-C5
5	D	301	PGW	C2-C3-C4-C5
5	J	201	PGW	C15-C16-C17-C18
5	A	304	PGW	C07-C06-C10-C9
5	A	306	PGW	C07-C06-C10-C9
5	A	303	PGW	C18-C28-C30-C29
5	D	304	PGW	C18-C28-C30-C29
5	G	201	PGW	C15-C16-C17-C18
5	D	303	PGW	C11-C12-C13-C14
5	A	302	PGW	C11-C12-C13-C14
5	A	301	PGW	C3-C4-C5-C6
5	D	302	PGW	C3-C4-C5-C6
5	D	301	PGW	C25-C26-C27-C15

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Mol	Chain	Res	Type	Atoms
5	A	305	PGW	C25-C26-C27-C15
5	A	303	PGW	C11-C12-C13-C14
5	D	301	PGW	C5-C6-C7-C8
5	D	304	PGW	C11-C12-C13-C14
5	A	305	PGW	C5-C6-C7-C8
5	A	303	PGW	C07-C06-C10-C9
5	A	303	PGW	C16-C15-C27-C26
5	D	304	PGW	C16-C15-C27-C26
5	G	201	PGW	O03-C19-C20-C21
5	J	201	PGW	O03-C19-C20-C21
5	A	304	PGW	O03-C19-C20-C21
5	A	306	PGW	O03-C19-C20-C21
5	A	301	PGW	C7-C8-C9-C10
5	D	302	PGW	C7-C8-C9-C10
5	D	304	PGW	C07-C06-C10-C9
5	A	304	PGW	C16-C17-C18-C28
5	A	301	PGW	C01-C02-C03-O11
5	D	302	PGW	C01-C02-C03-O11
5	A	306	PGW	C16-C17-C18-C28
5	A	302	PGW	O03-C19-C20-C21
5	D	303	PGW	O03-C19-C20-C21
5	A	304	PGW	O04-C19-C20-C21
5	A	306	PGW	O04-C19-C20-C21
5	G	201	PGW	O04-C19-C20-C21
5	J	201	PGW	O04-C19-C20-C21
5	A	304	PGW	C04-O12-P-O14
5	A	306	PGW	C04-O12-P-O14
5	A	303	PGW	C22-C23-C24-C25
5	D	304	PGW	C22-C23-C24-C25
5	G	201	PGW	C11-C12-C13-C14
5	J	201	PGW	C11-C12-C13-C14
5	A	302	PGW	O04-C19-C20-C21
5	D	303	PGW	O04-C19-C20-C21
5	D	301	PGW	C06-C07-C08-C09
5	A	305	PGW	O01-C1-C2-C3
5	D	301	PGW	O01-C1-C2-C3
5	D	301	PGW	O03-C19-C20-C21
5	A	305	PGW	C06-C07-C08-C09
5	A	305	PGW	O03-C19-C20-C21
5	G	201	PGW	C07-C06-C10-C9
5	J	201	PGW	C07-C06-C10-C9
5	D	304	PGW	O03-C19-C20-C21

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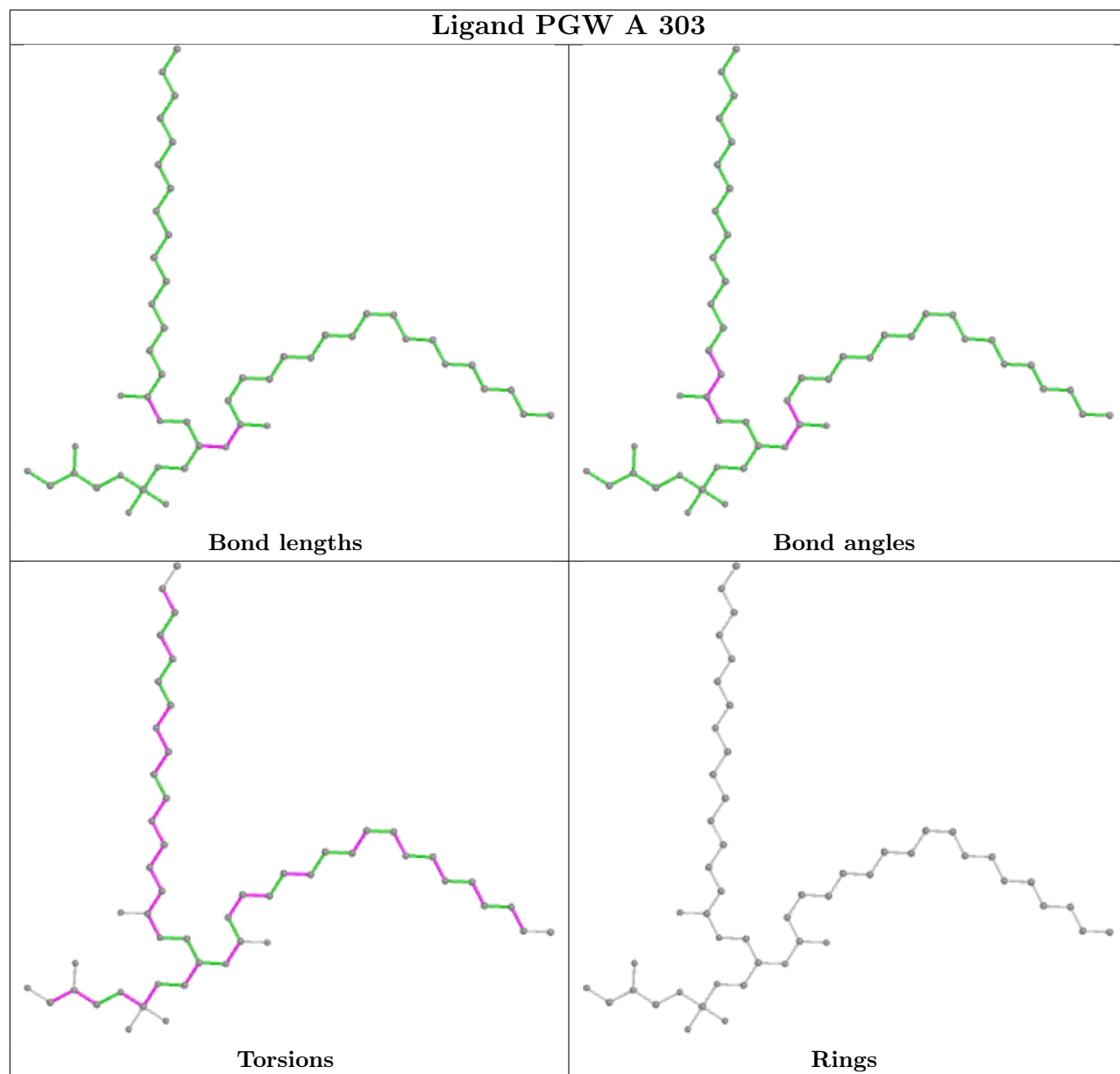
Mol	Chain	Res	Type	Atoms
5	A	305	PGW	O04-C19-C20-C21
5	A	303	PGW	O03-C19-C20-C21

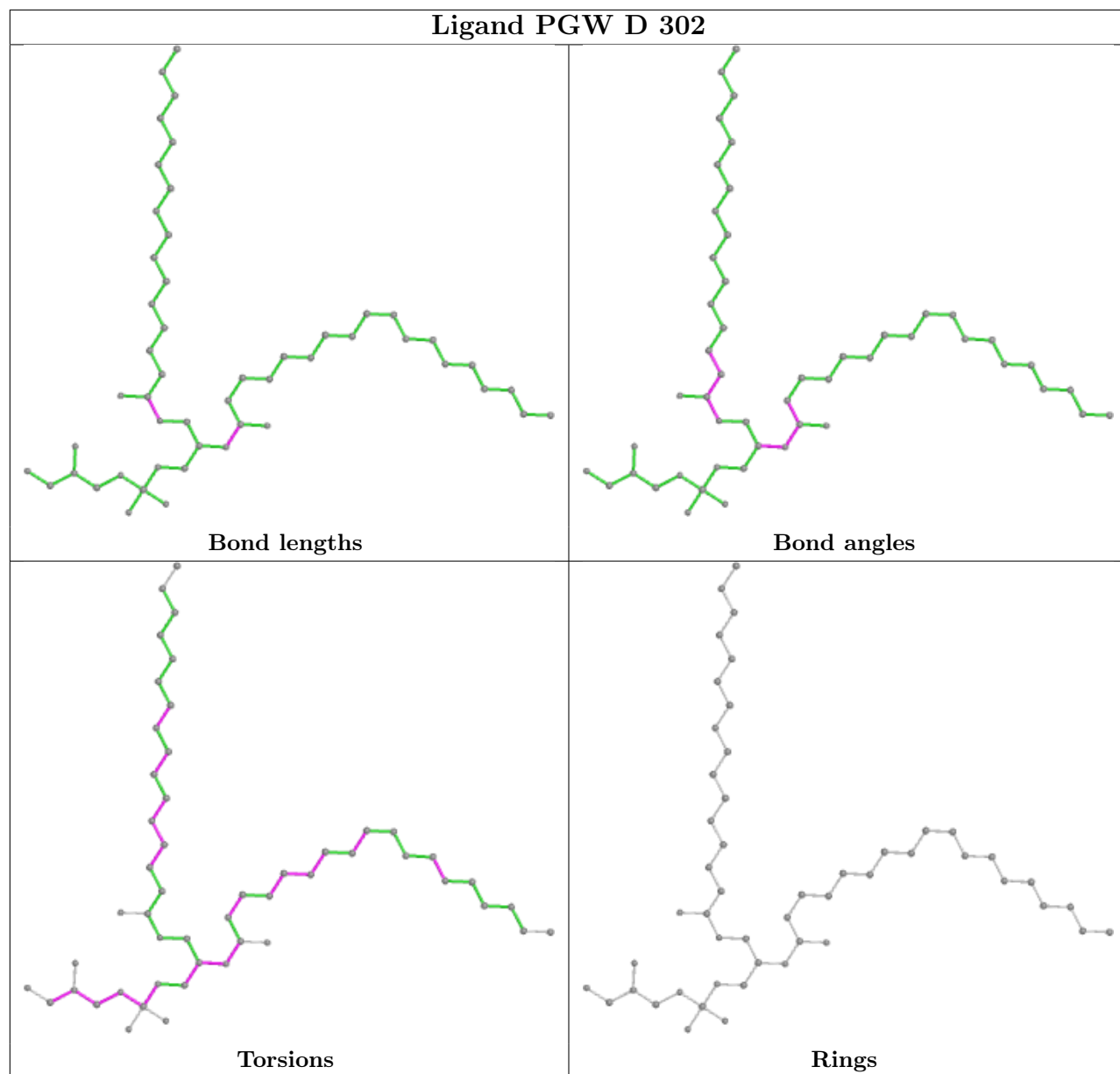
There are no ring outliers.

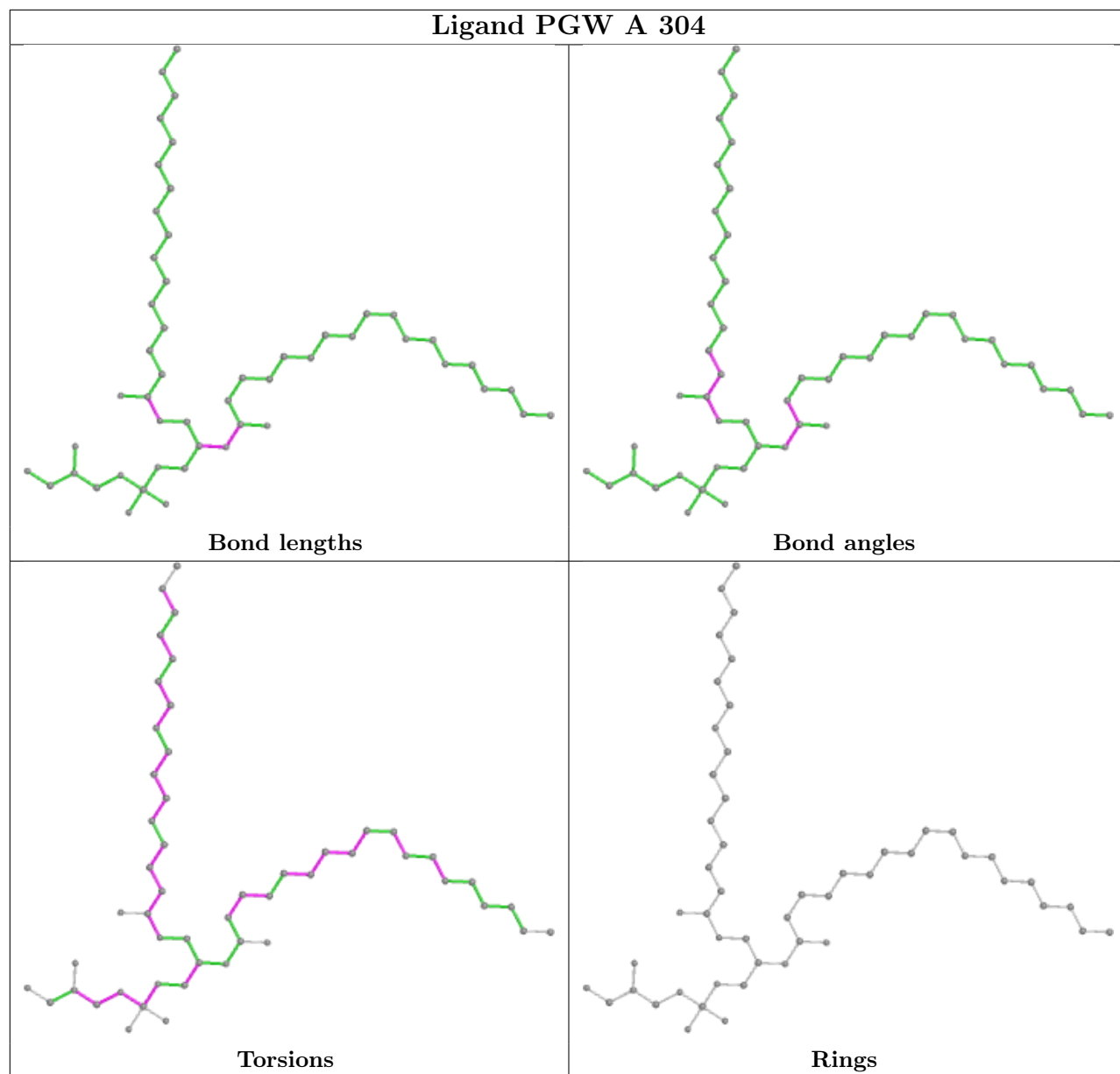
10 monomers are involved in 23 short contacts:

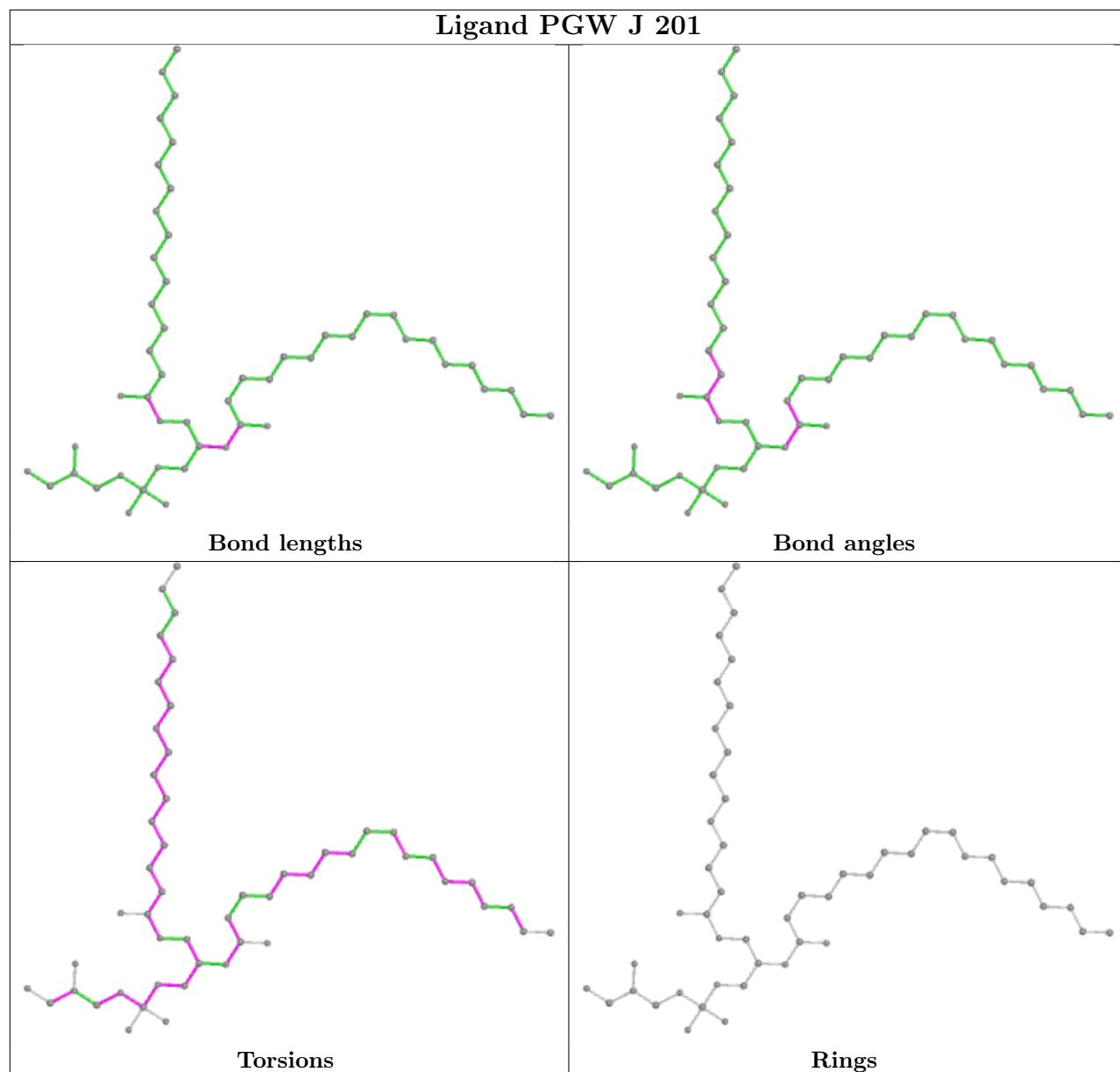
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	D	302	PGW	2	0
5	A	304	PGW	6	0
5	J	201	PGW	1	0
5	A	302	PGW	2	0
5	A	301	PGW	2	0
5	A	306	PGW	5	0
5	D	301	PGW	1	0
5	A	305	PGW	1	0
5	G	201	PGW	2	0
5	D	303	PGW	4	0

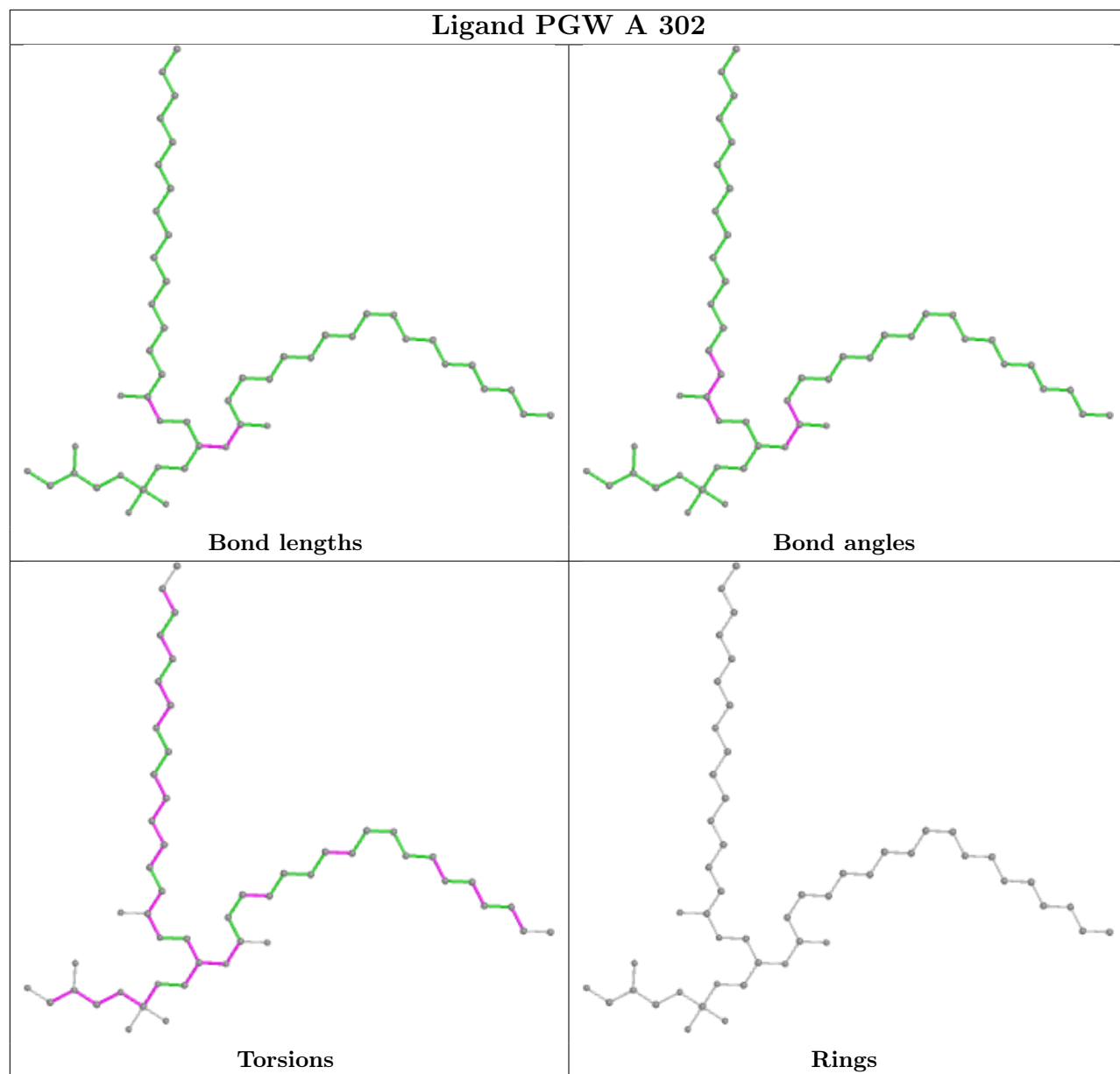
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

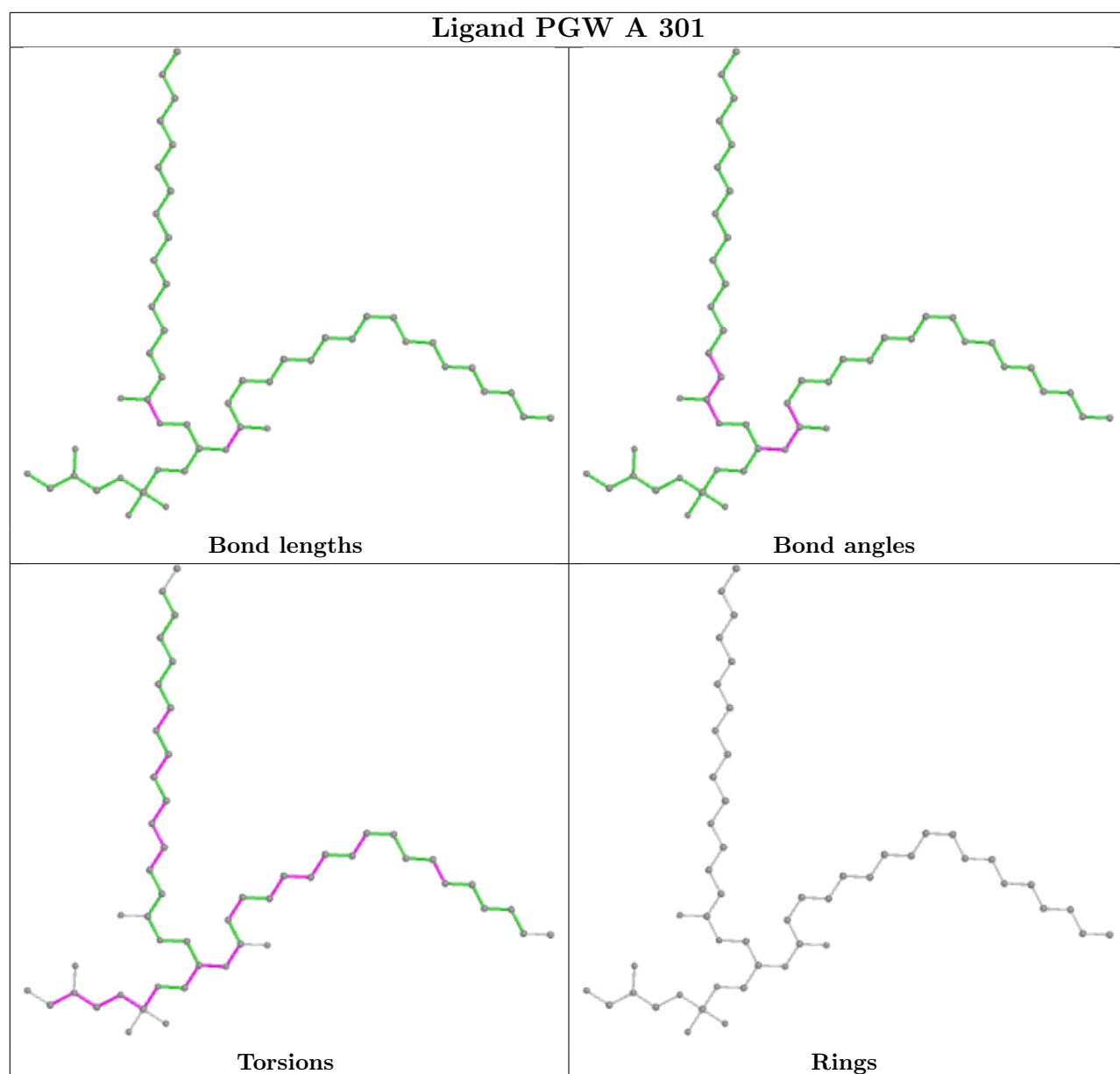


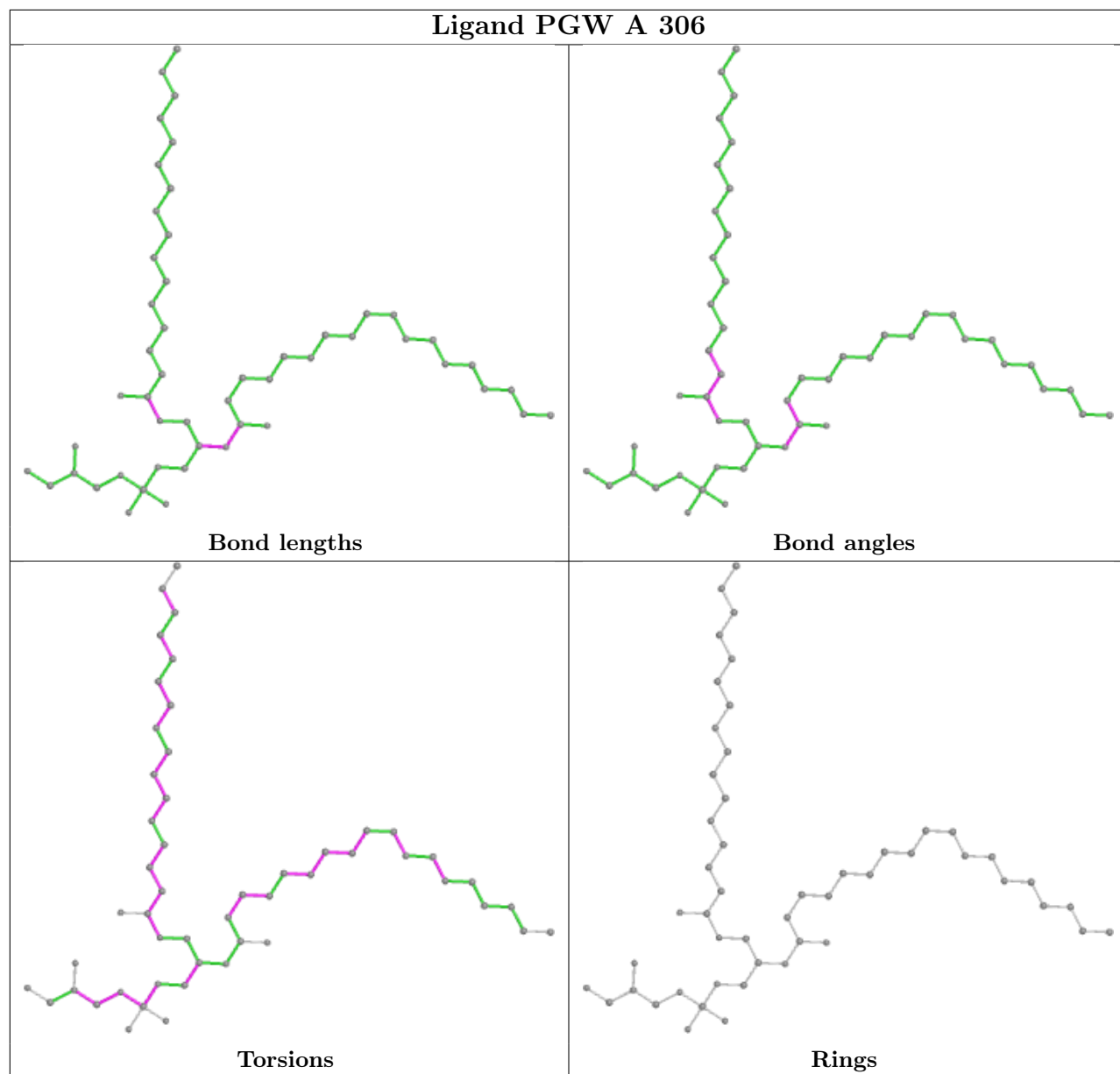


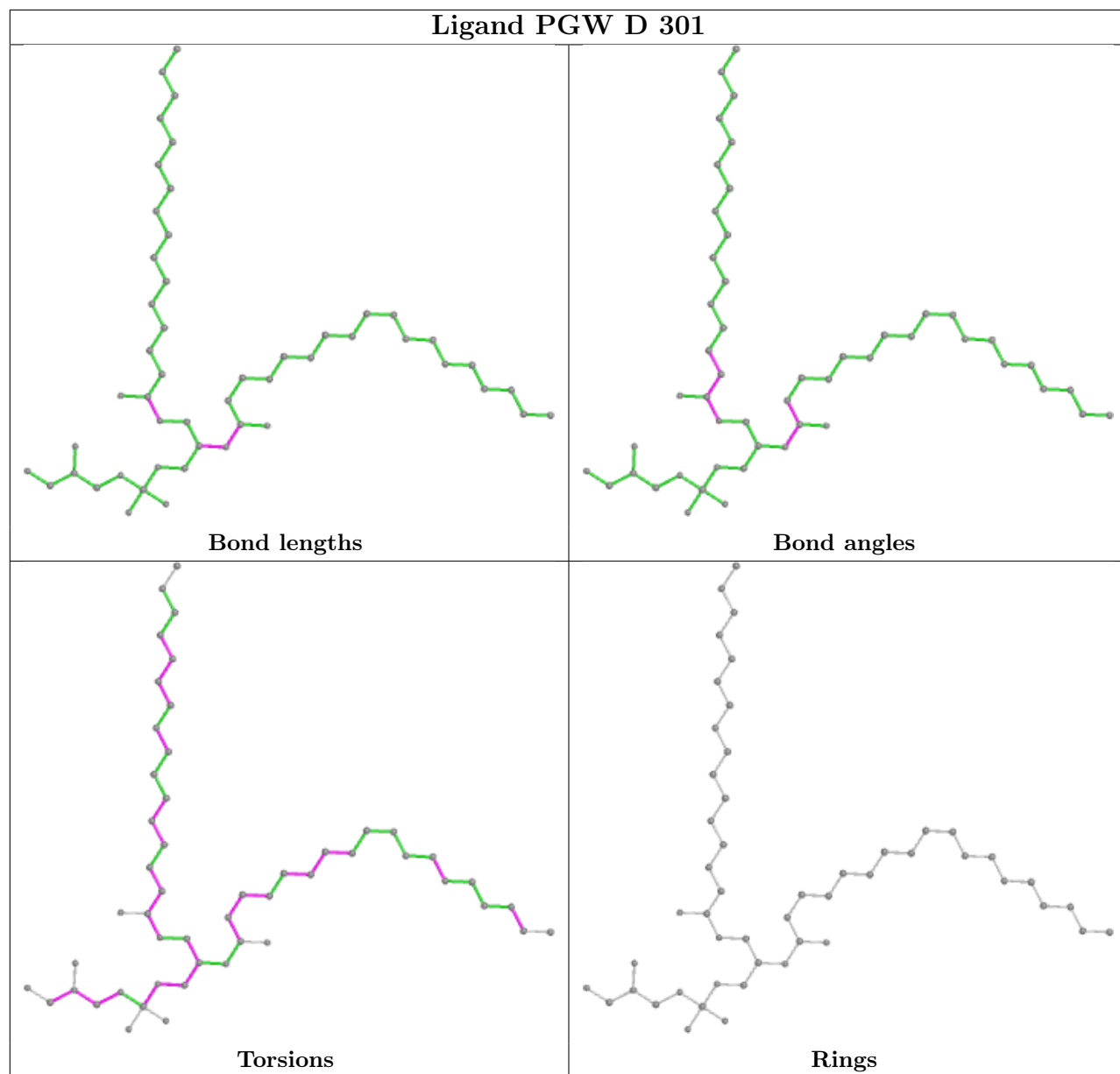


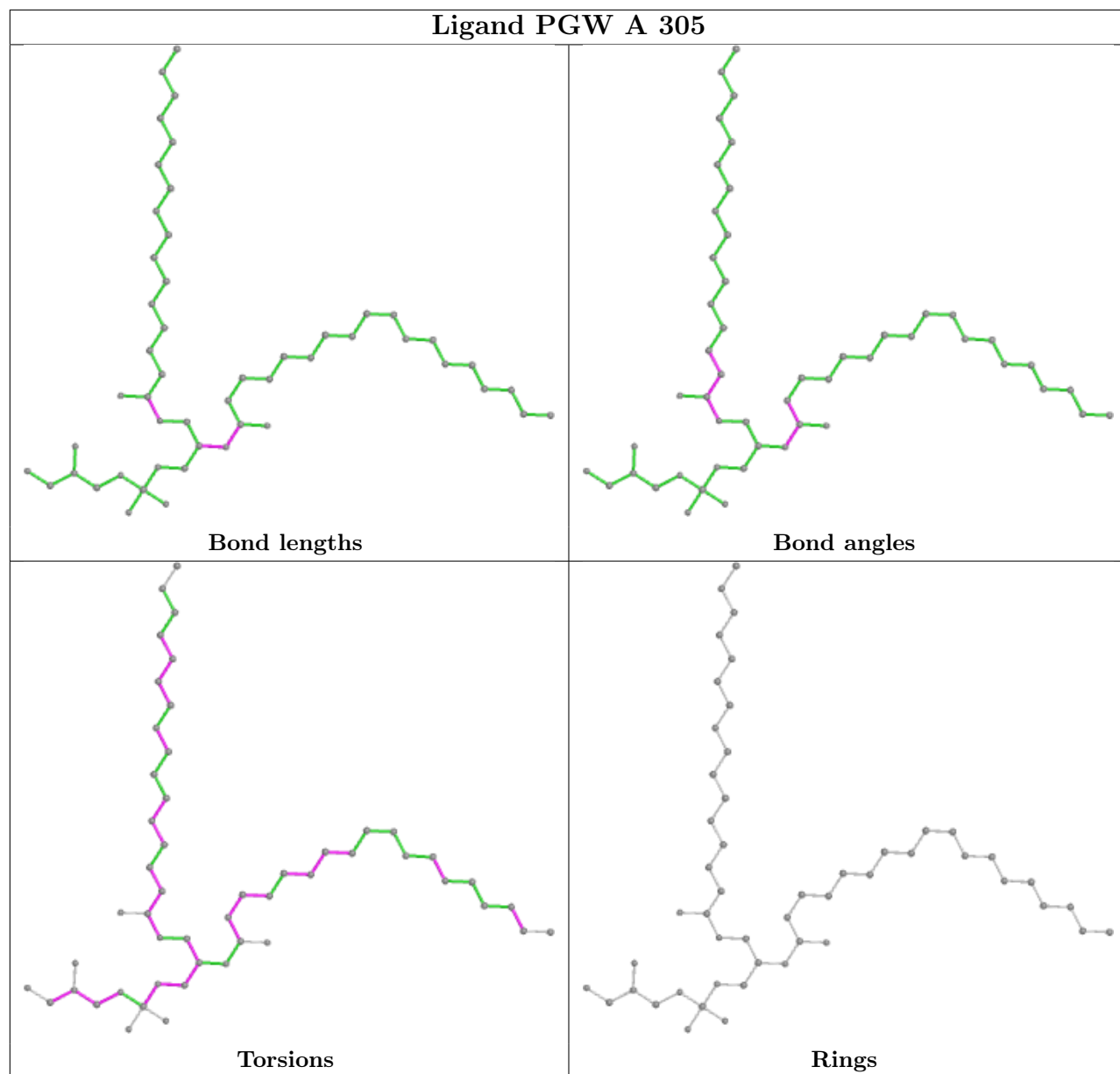


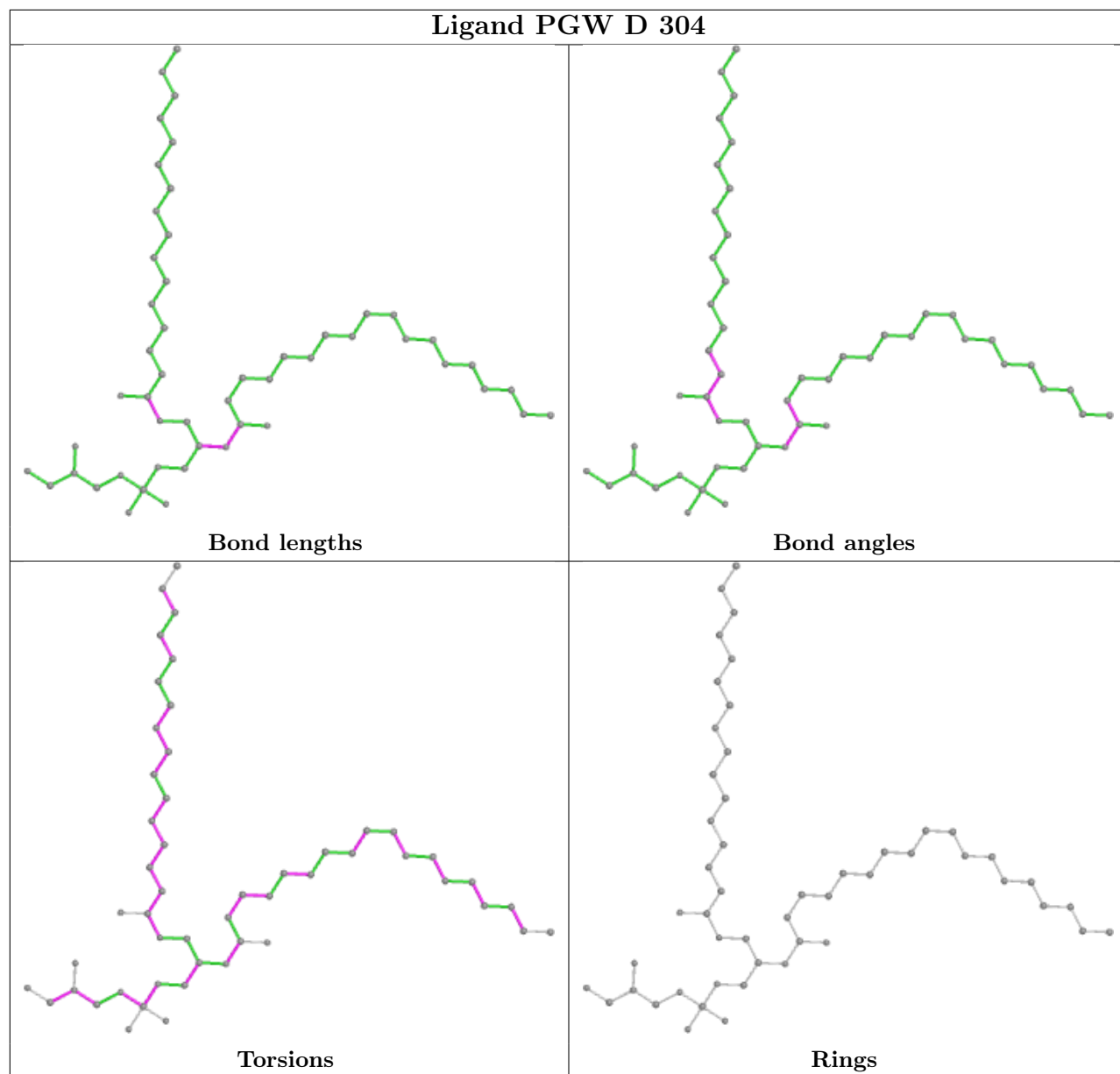


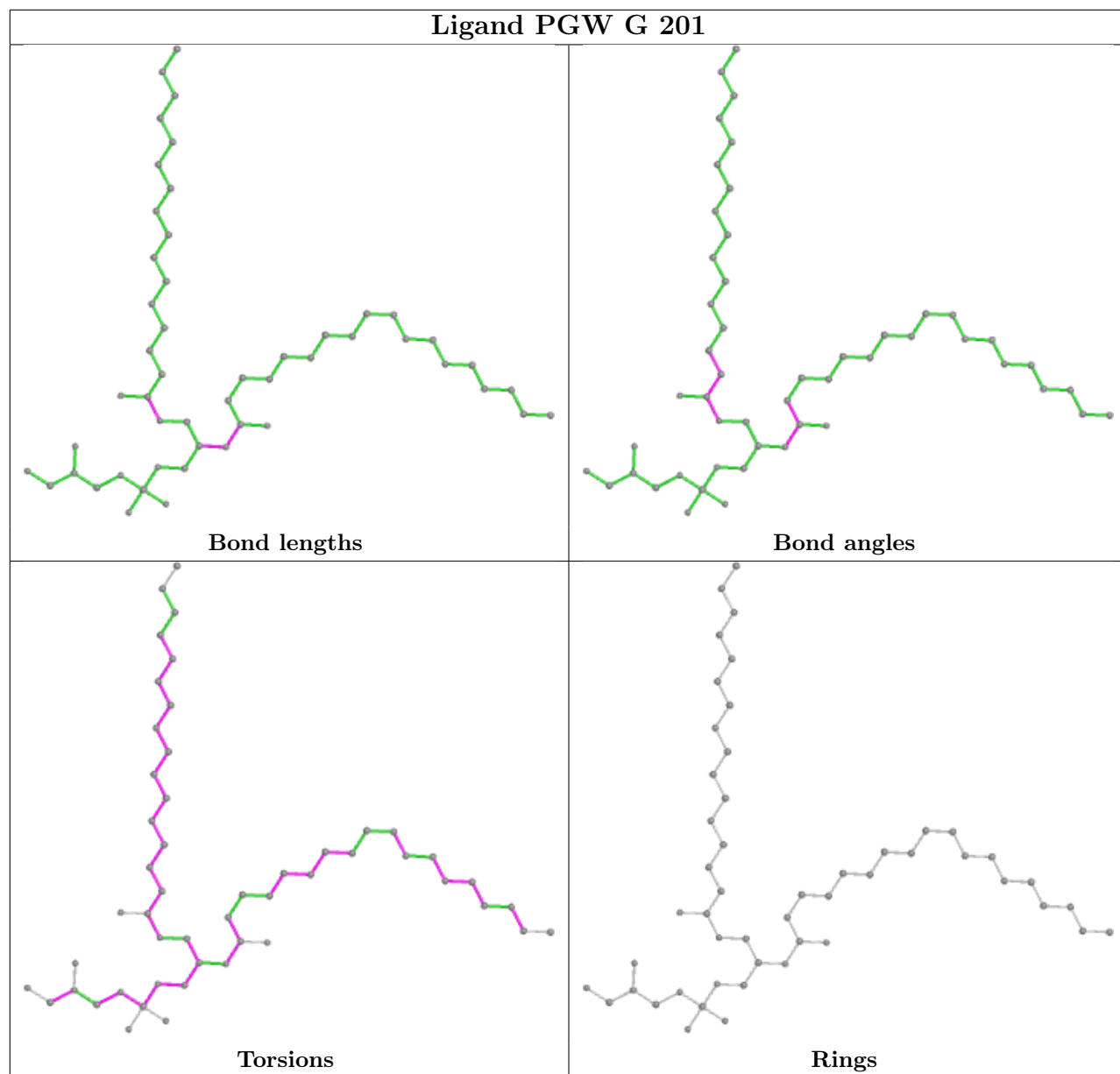


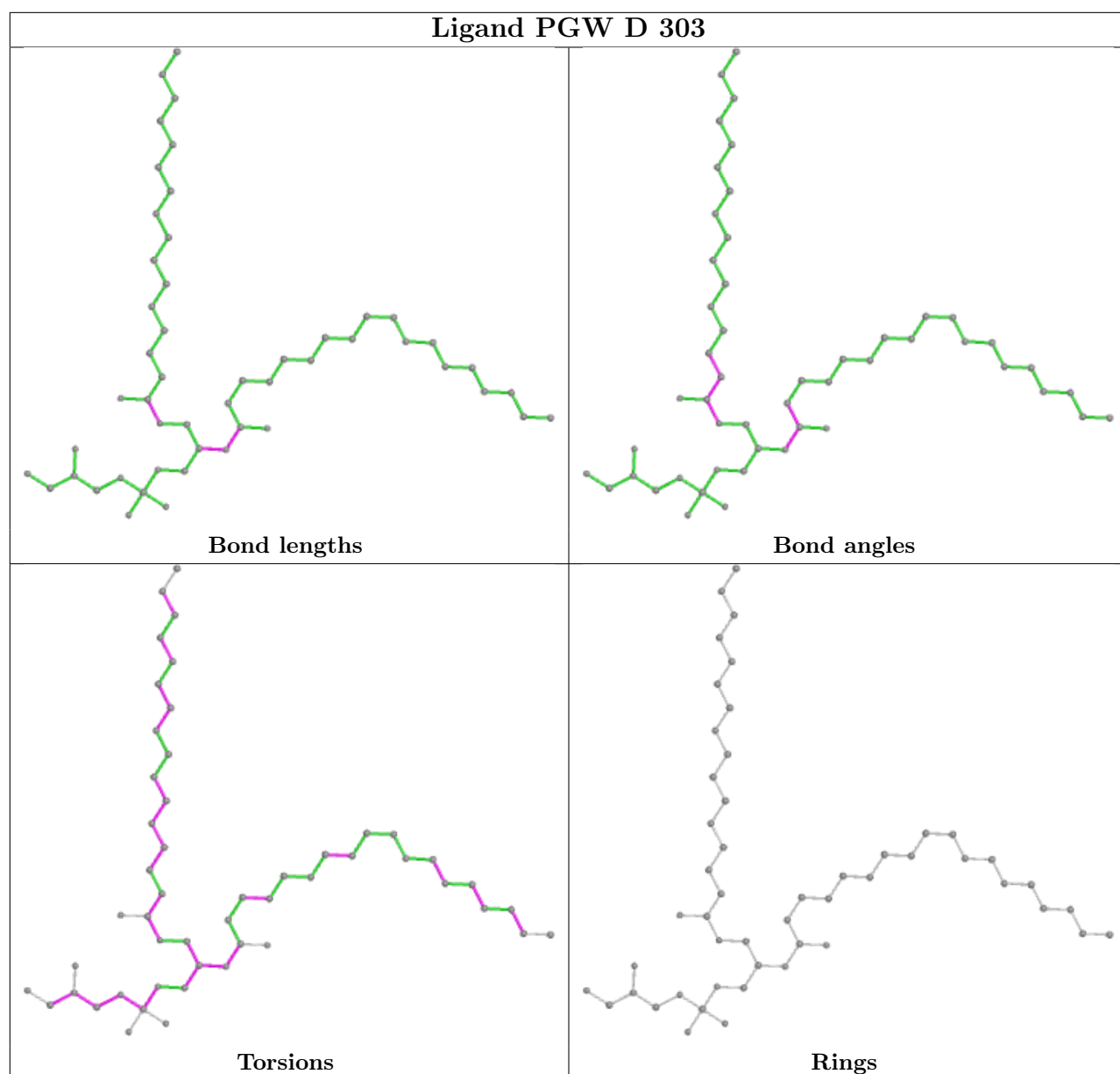












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

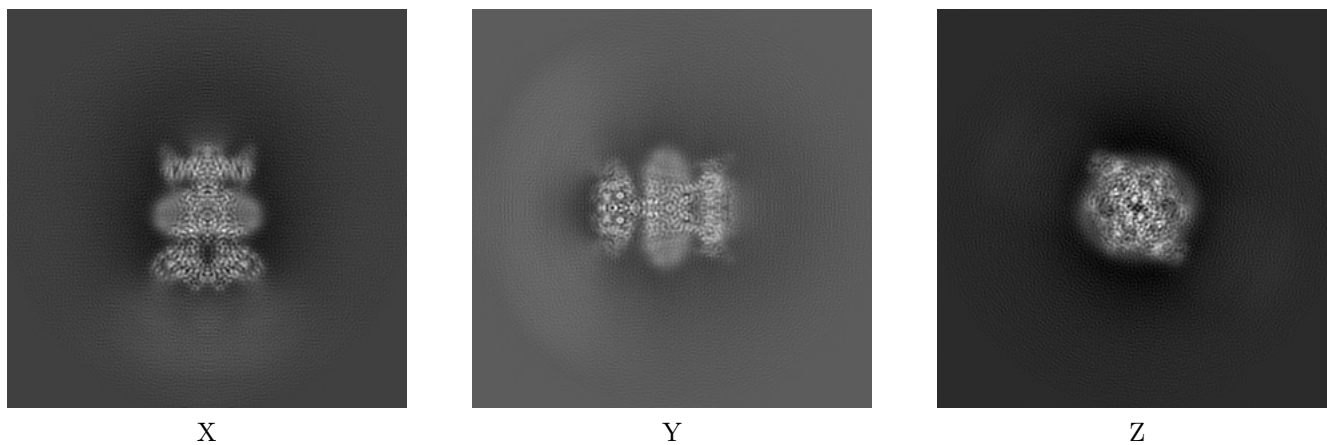
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30355. 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](#)

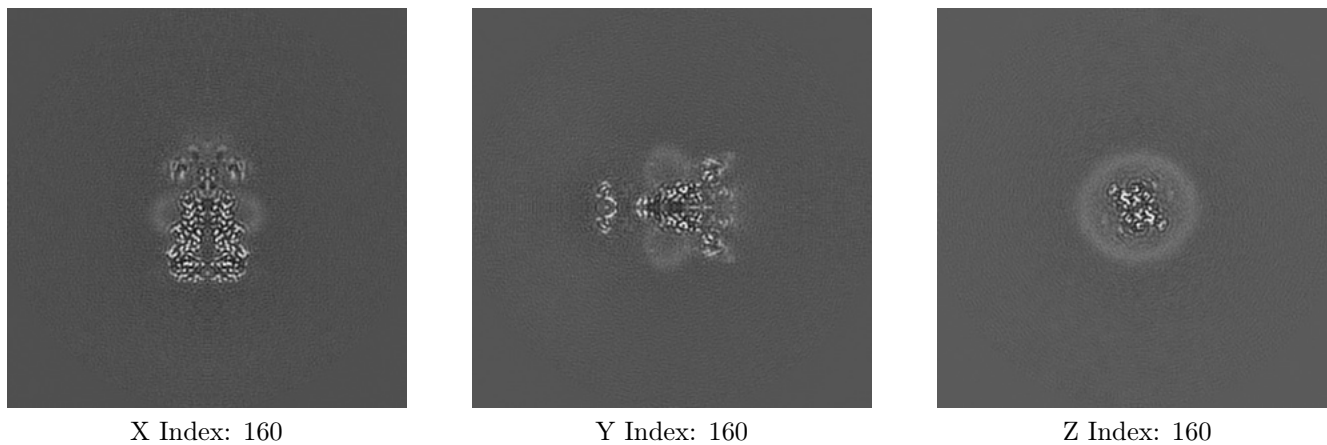
6.1.1 Primary map



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

6.2 Central slices [i](#)

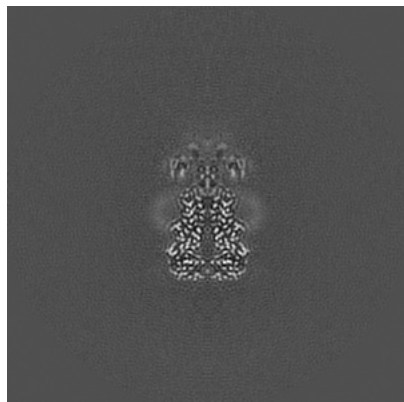
6.2.1 Primary map



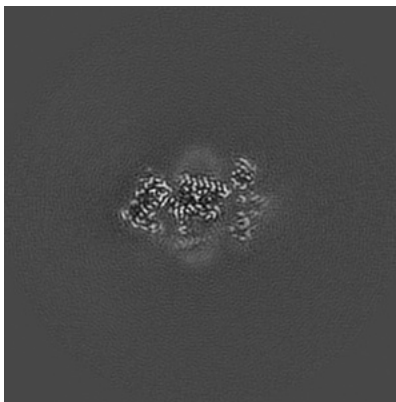
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

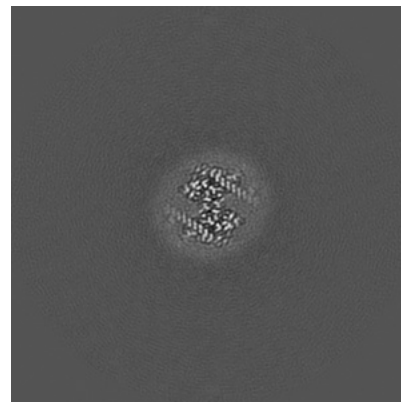
6.3.1 Primary map



X Index: 160



Y Index: 148

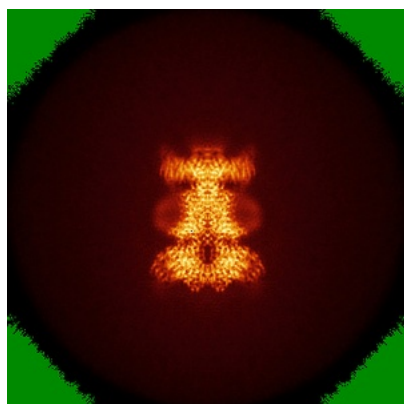


Z Index: 143

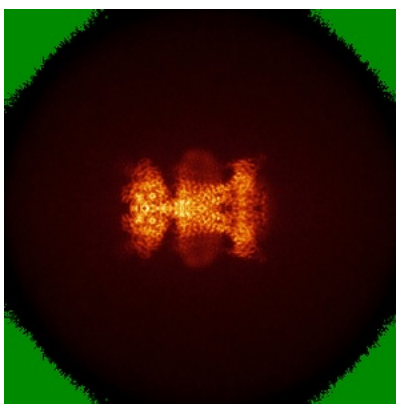
The images above show the largest variance slices of the map in three orthogonal directions.

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

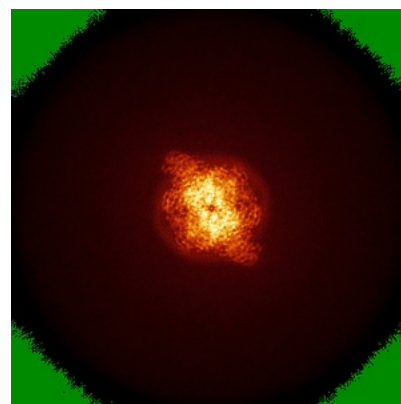
6.4.1 Primary map



X



Y



Z

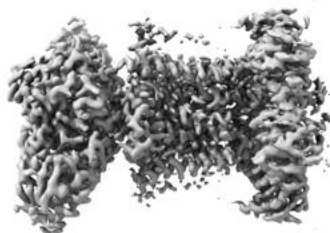
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

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 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

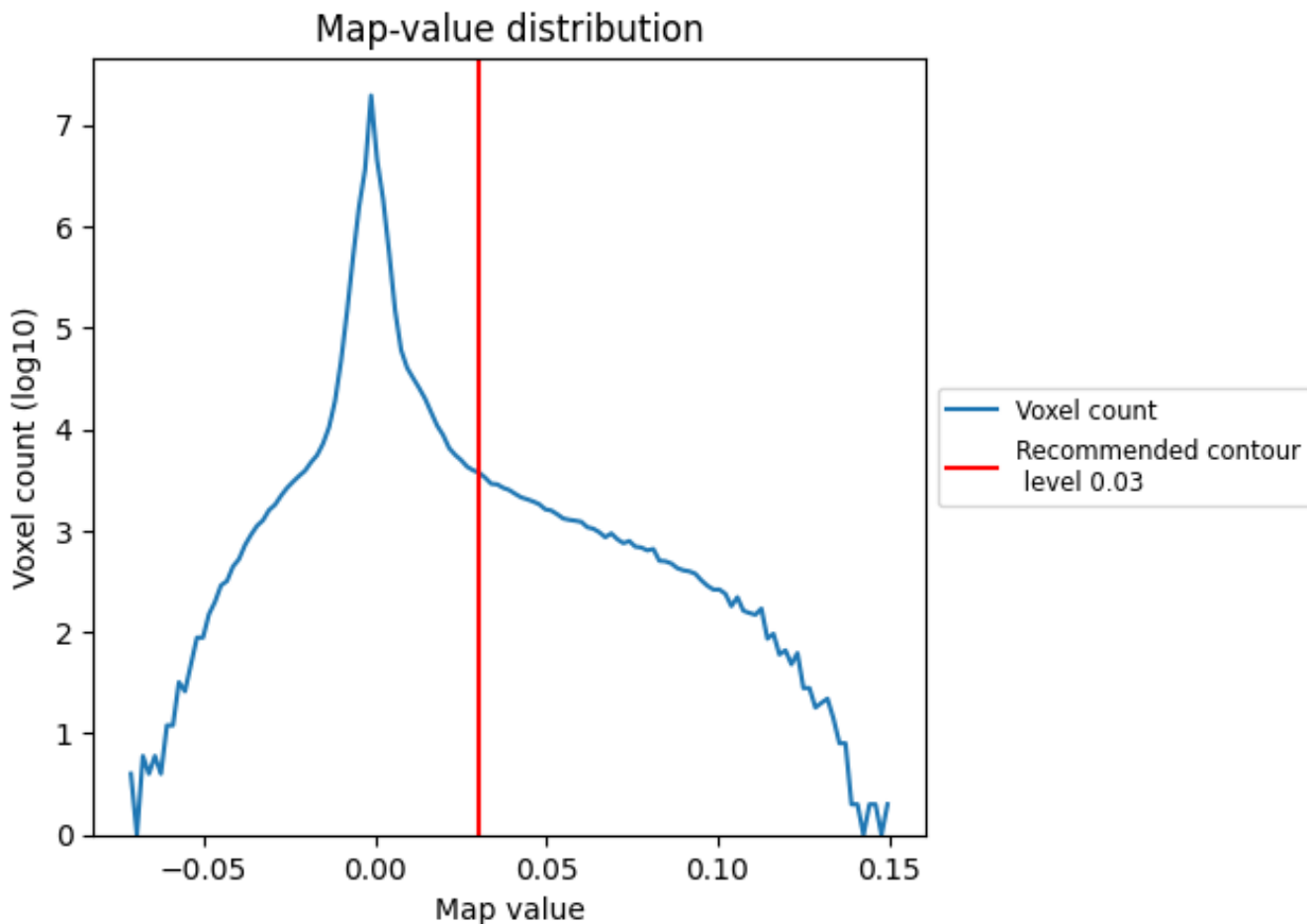
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

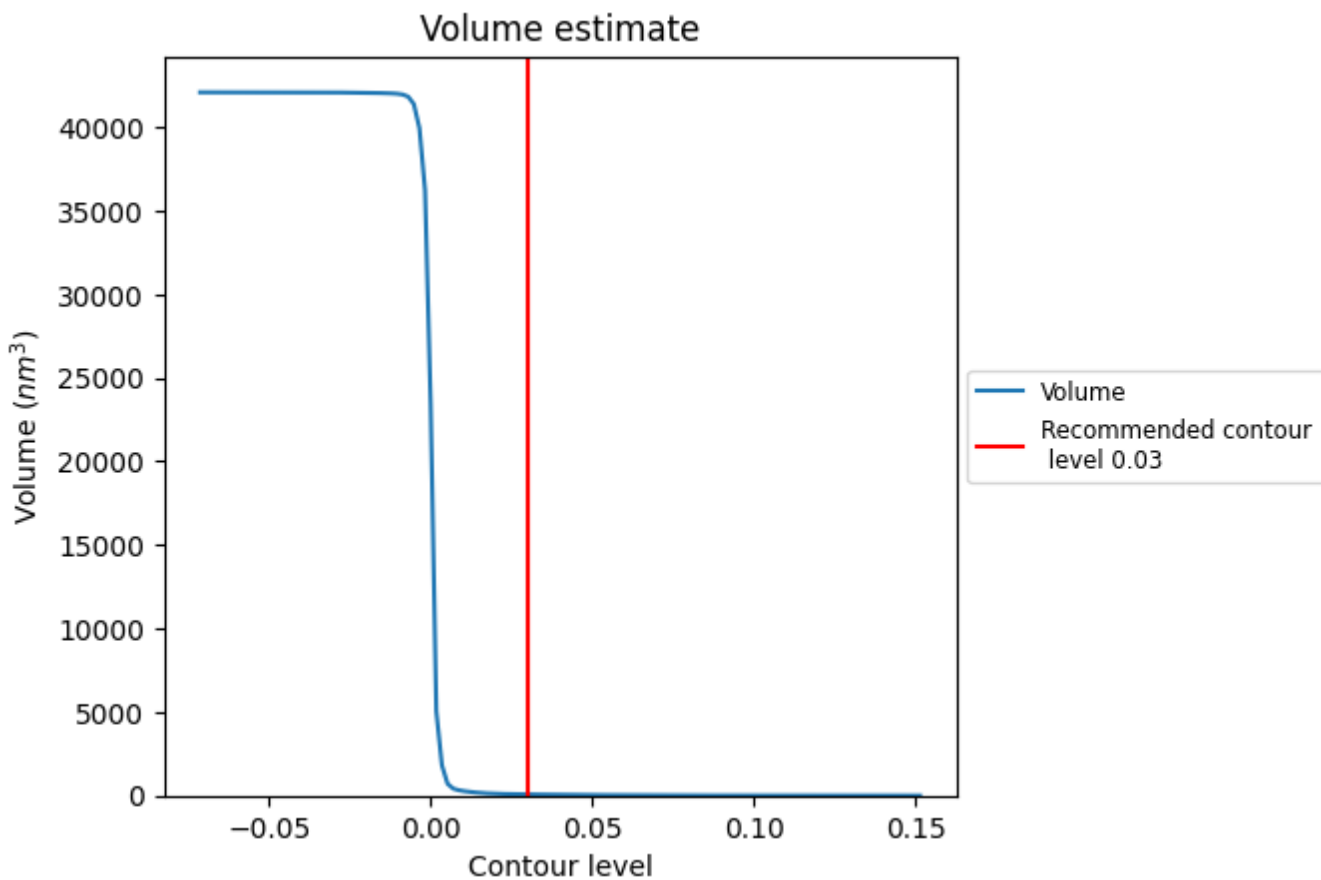
This section contains the results of statistical analysis of the map.

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.

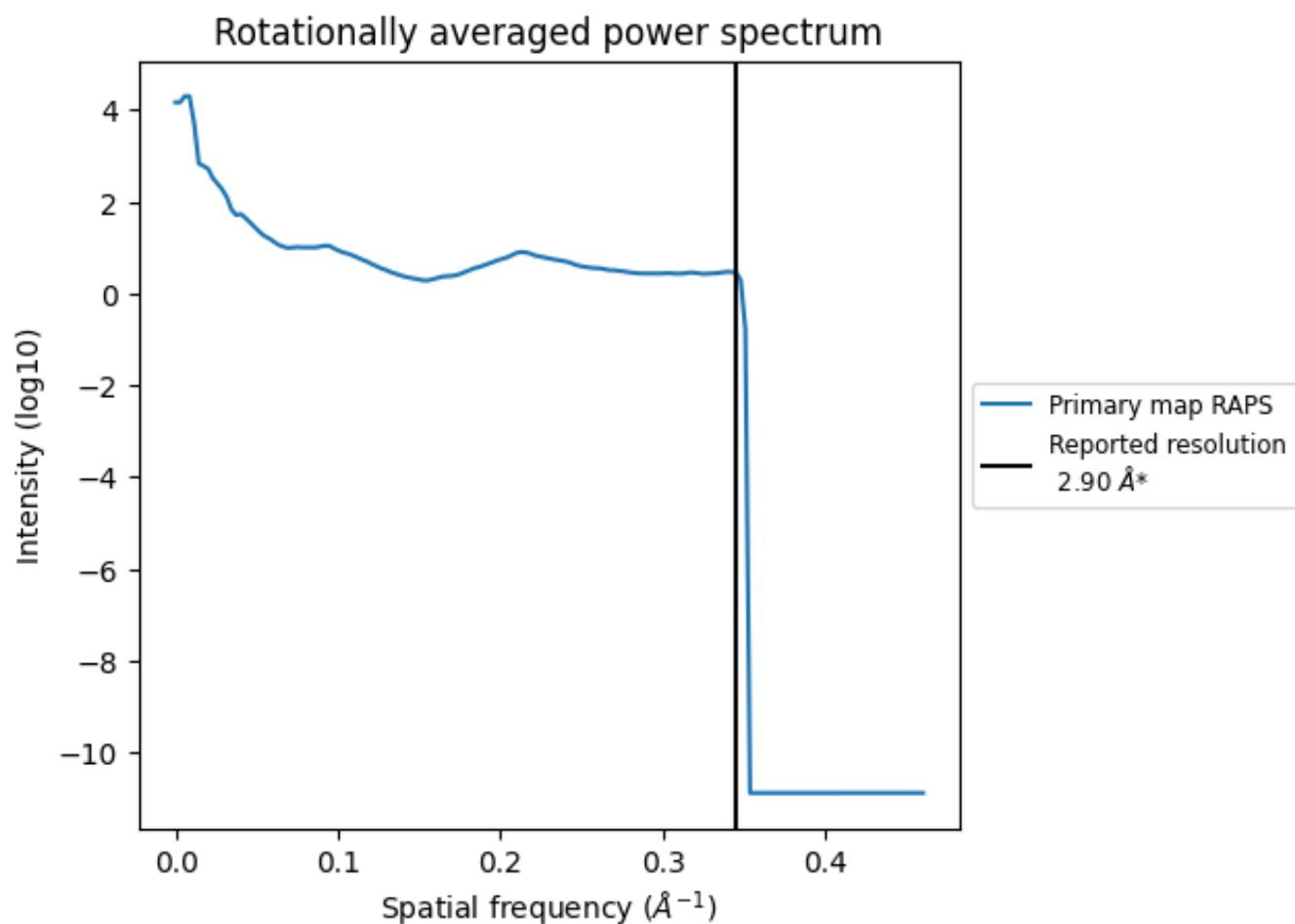
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 70 nm³; this corresponds to an approximate mass of 63 kDa.

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

7.3 Rotationally averaged power spectrum [\(i\)](#)



*Reported resolution corresponds to spatial frequency of 0.345 Å⁻¹

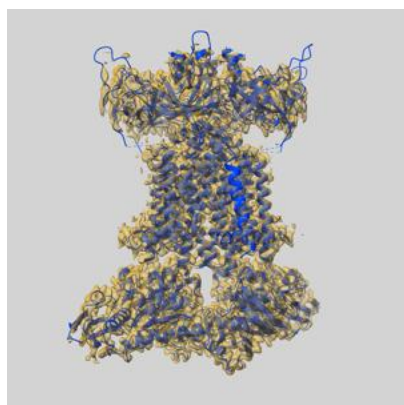
8 Fourier-Shell correlation

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

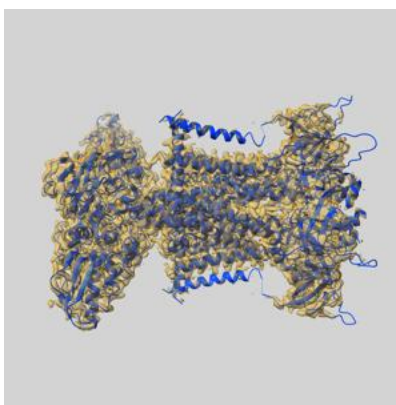
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-30355 and PDB model 7CGE. Per-residue inclusion information can be found in section 3 on page 7.

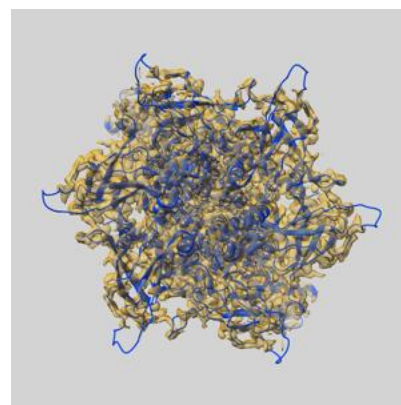
9.1 Map-model overlay [i](#)



X



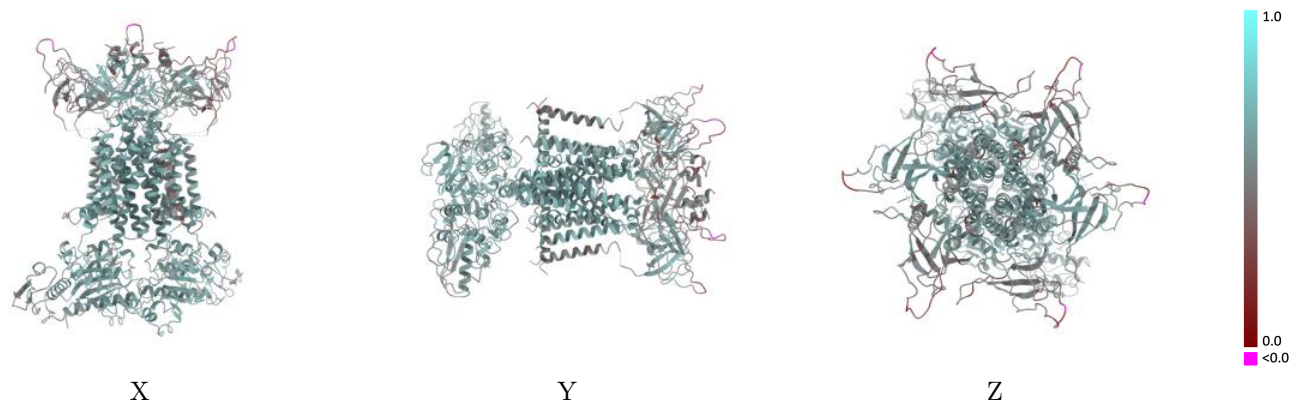
Y



Z

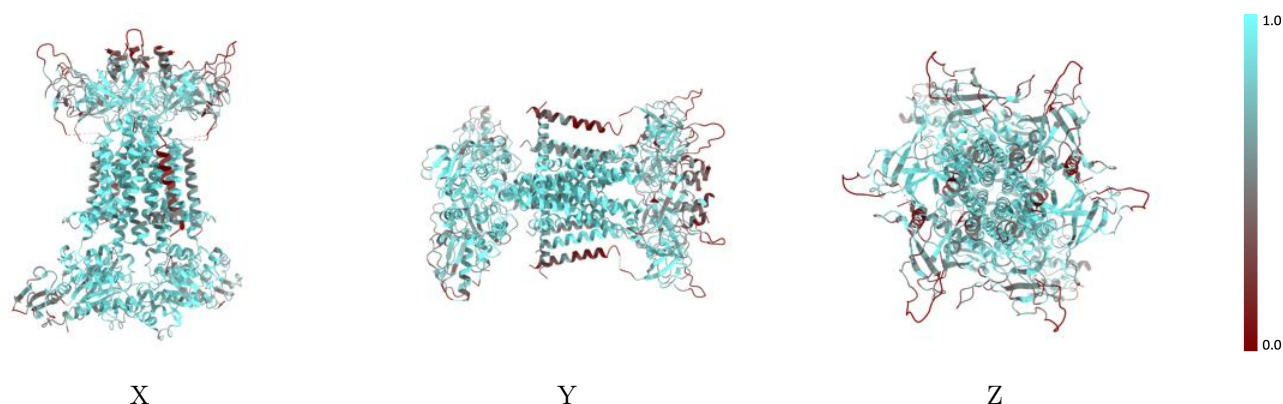
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



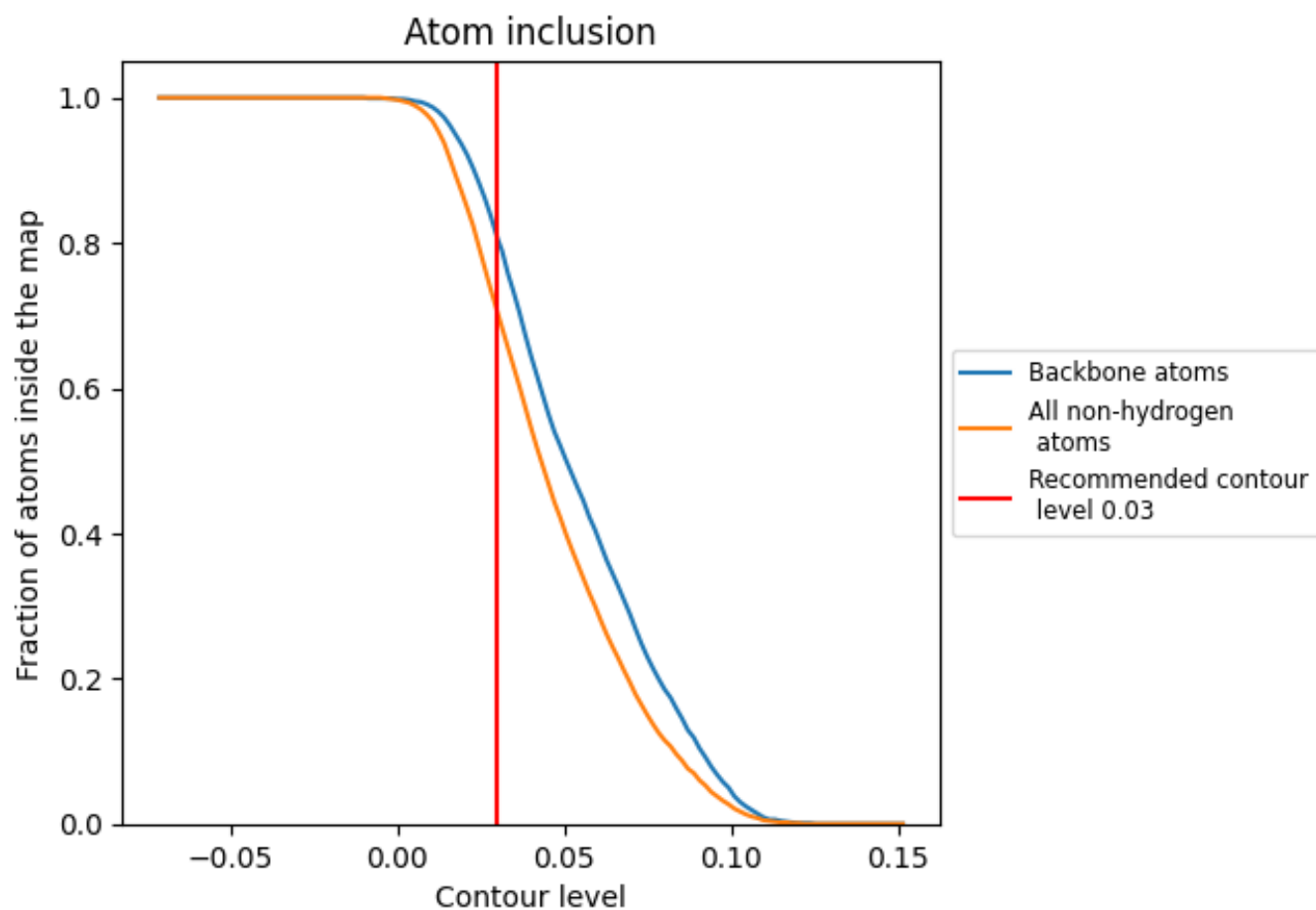
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.03).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 70% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7030	 0.5590
A	 0.8130	 0.6130
B	 0.8290	 0.6020
C	 0.6070	 0.5340
D	 0.8290	 0.6200
E	 0.8260	 0.6000
F	 0.6100	 0.5360
G	 0.5690	 0.4970
H	 0.5400	 0.4860
I	 0.6050	 0.5200
J	 0.5640	 0.4960
K	 0.5450	 0.4830
L	 0.6010	 0.5260

