



Full wwPDB EM Validation Report ⓘ

Aug 12, 2021 – 02:44 PM EDT

PDB ID : 7RR7
EMDB ID : EMD-24654
Title : Multidrug efflux pump subunit AcrB
Deposited on : 2021-08-09
Resolution : 3.05 Å (reported)
Based on initial model : 6BAJ

This is a Full wwPDB EM Validation Report.

This report is produced by the wwPDB biocuration pipeline after annotation of the structure.

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

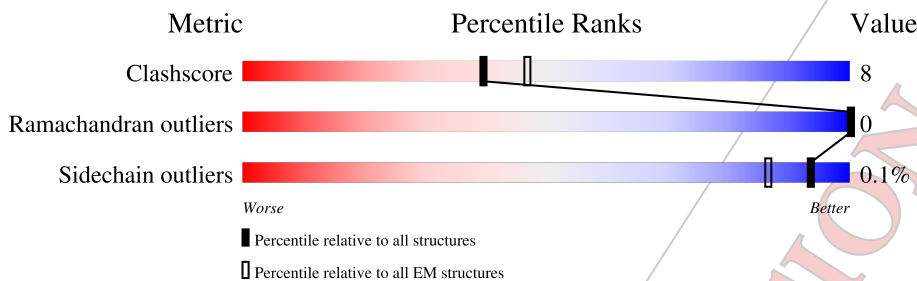
EMDB validation analysis : 0.0.0.dev97
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.23.1

1 Overall quality at a glance i

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

The reported resolution of this entry is 3.05 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	1057	78% 18% .
1	B	1057	80% 16% .
1	C	1057	78% 19% .

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 23734 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.

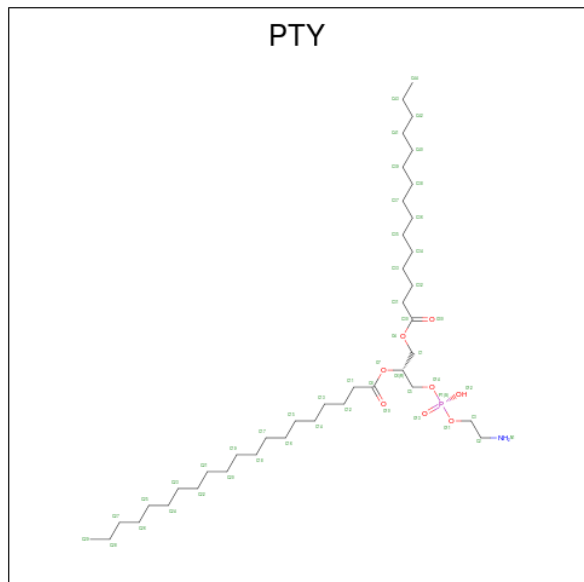
- Molecule 1 is a protein called Multidrug efflux pump subunit AcrB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	1018	7732	4977	1274	1437	44	0	0
1	C	1025	7783	5010	1282	1447	44	0	0
1	A	1018	7654	4926	1254	1430	44	0	0

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1050	LEU	-	expression tag	UNP P31224
B	1051	GLU	-	expression tag	UNP P31224
B	1052	HIS	-	expression tag	UNP P31224
B	1053	HIS	-	expression tag	UNP P31224
B	1054	HIS	-	expression tag	UNP P31224
B	1055	HIS	-	expression tag	UNP P31224
B	1056	HIS	-	expression tag	UNP P31224
B	1057	HIS	-	expression tag	UNP P31224
C	1050	LEU	-	expression tag	UNP P31224
C	1051	GLU	-	expression tag	UNP P31224
C	1052	HIS	-	expression tag	UNP P31224
C	1053	HIS	-	expression tag	UNP P31224
C	1054	HIS	-	expression tag	UNP P31224
C	1055	HIS	-	expression tag	UNP P31224
C	1056	HIS	-	expression tag	UNP P31224
C	1057	HIS	-	expression tag	UNP P31224
A	1050	LEU	-	expression tag	UNP P31224
A	1051	GLU	-	expression tag	UNP P31224
A	1052	HIS	-	expression tag	UNP P31224
A	1053	HIS	-	expression tag	UNP P31224
A	1054	HIS	-	expression tag	UNP P31224
A	1055	HIS	-	expression tag	UNP P31224
A	1056	HIS	-	expression tag	UNP P31224
A	1057	HIS	-	expression tag	UNP P31224

- Molecule 2 is PHOSPHATIDYLETHANOLAMINE (three-letter code: PTY) (formula: $C_{40}H_{80}NO_8P$) (labeled as "Ligand of Interest" by depositor).



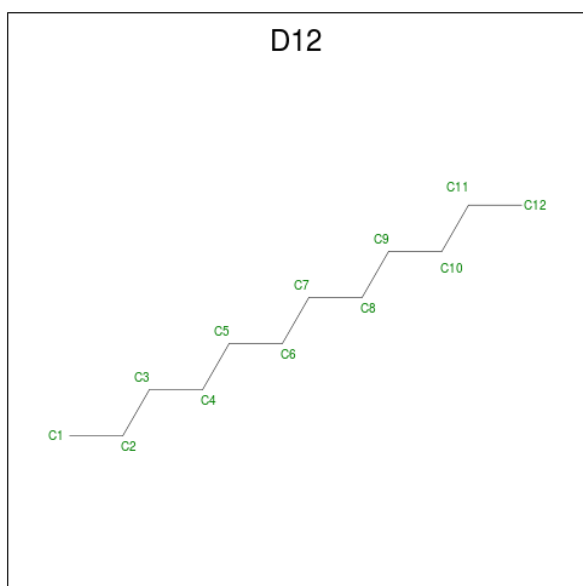
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
2	B	1	Total	C	N	O	P	0
			149	102	5	37	5	
2	B	1	Total	C	N	O	P	0
			149	102	5	37	5	
2	B	1	Total	C	N	O	P	0
			149	102	5	37	5	
2	B	1	Total	C	N	O	P	0
			149	102	5	37	5	
2	B	1	Total	C	N	O	P	0
			149	102	5	37	5	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	C	1	Total	C	N	O	P	0
			211	151	6	48	6	
2	A	1	Total	C	N	O	P	0
			135	97	3	31	4	

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Mol	Chain	Residues	Atoms				AltConf	
			Total	C	N	O		P
2	A	1	135	97	3	31	4	0
2	A	1	135	97	3	31	4	0
2	A	1	135	97	3	31	4	0

- Molecule 3 is DODECANE (three-letter code: D12) (formula: C₁₂H₂₆) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms		AltConf
3	B	1	Total	C	0
			19	19	
3	B	1	Total	C	0
			19	19	
3	B	1	Total	C	0
			19	19	
3	B	1	Total	C	0
			19	19	
3	C	1	Total	C	0
			8	8	
3	C	1	Total	C	0
			8	8	
3	A	1	Total	C	0
			43	43	
3	A	1	Total	C	0
			43	43	

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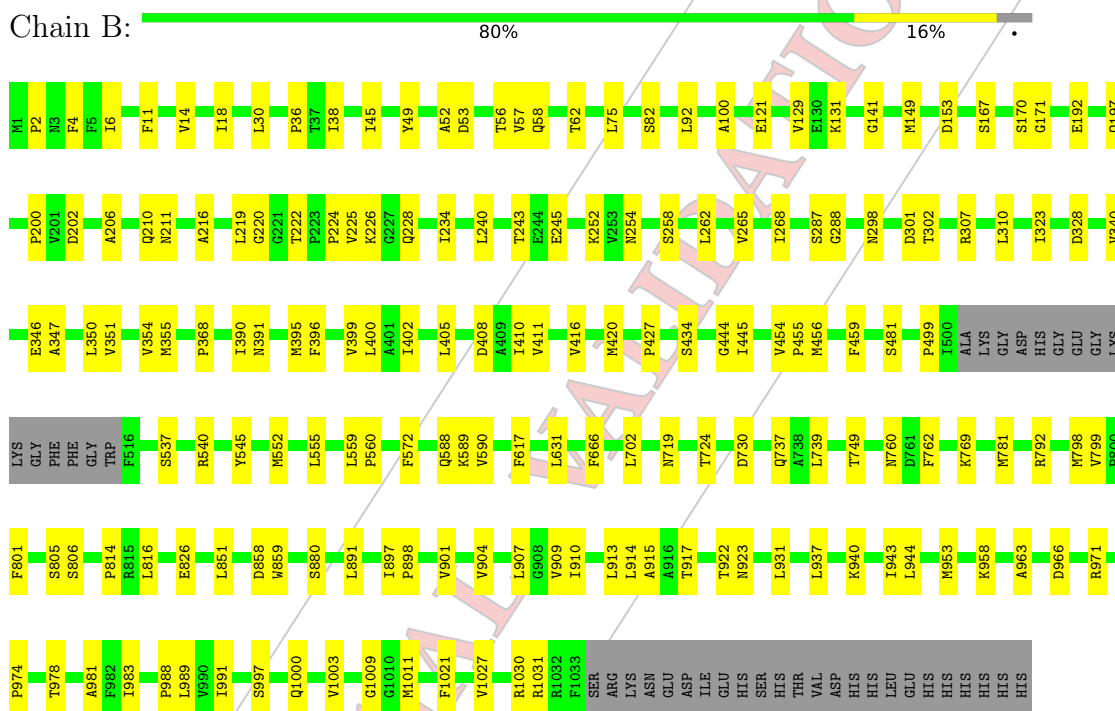
Mol	Chain	Residues	Atoms	AltConf
3	A	1	Total C 43 43	0
3	A	1	Total C 43 43	0
3	A	1	Total C 43 43	0
3	A	1	Total C 43 43	0

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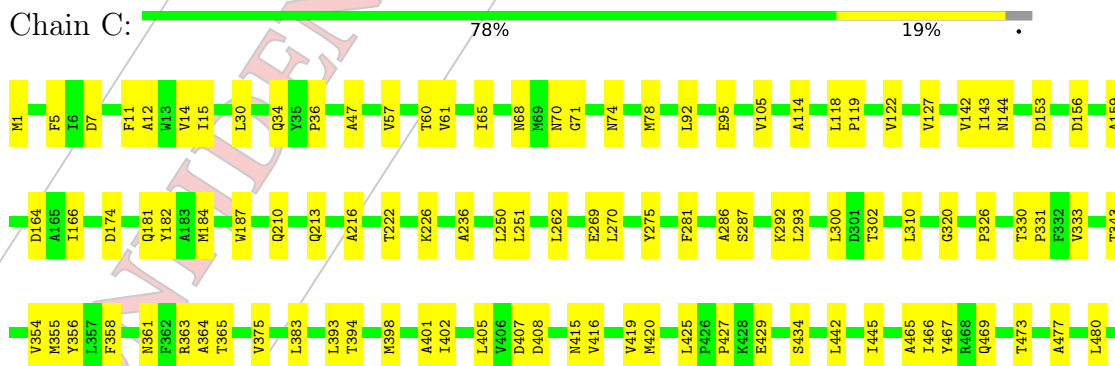
3 Residue-property plots

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

- Molecule 1: Multidrug efflux pump subunit AcrB



- Molecule 1: Multidrug efflux pump subunit AcrB



4 Experimental information i

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	73352	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	67.15	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.651	Depositor
Minimum map value	-0.319	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	306.0, 306.0, 306.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85, 0.85, 0.85	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: PTY, D12

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	0.29	0/7796	0.52	0/10604
1	B	0.28	0/7876	0.50	0/10698
1	C	0.29	0/7930	0.50	0/10773
All	All	0.29	0/23602	0.51	0/32075

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	7654	0	7754	124	0
1	B	7732	0	7896	121	0
1	C	7783	0	7933	133	0
2	A	135	0	166	6	0
2	B	149	0	178	3	0
2	C	211	0	260	8	0
3	A	43	0	71	4	0
3	B	19	0	31	0	0
3	C	8	0	14	0	0
All	All	23734	0	24303	371	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 8.

All (371) 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:A:355:MET:HE1	1:A:410:ILE:HG22	1.18	1.14
1:C:78:MET:HG3	1:C:92:LEU:HD23	1.33	1.08
2:A:1104:PTY:O12	3:A:1107:D12:H31	1.67	0.92
1:A:355:MET:HE1	1:A:410:ILE:CG2	2.00	0.92
1:A:355:MET:CE	1:A:410:ILE:HG22	2.00	0.91
1:A:410:ILE:HA	1:A:413:VAL:HG12	1.63	0.81
1:C:78:MET:CG	1:C:92:LEU:HD23	2.11	0.81
1:C:78:MET:HG3	1:C:92:LEU:CD2	2.11	0.79
1:B:340:VAL:HG11	1:B:395:MET:HB3	1.67	0.76
1:A:446:ALA:HB2	1:A:482:VAL:HG21	1.68	0.76
1:A:355:MET:CE	1:A:410:ILE:CG2	2.63	0.74
1:C:405:LEU:HD21	1:C:477:ALA:HB1	1.70	0.72
1:B:170:SER:O	1:B:302:THR:HG23	1.92	0.69
1:C:144:ASN:ND2	1:C:320:GLY:O	2.26	0.68
1:A:410:ILE:HD11	1:A:978:THR:HG23	1.74	0.68
1:C:60:THR:HG23	1:C:61:VAL:HG23	1.76	0.68
1:A:351:VAL:HG21	1:A:406:VAL:HG21	1.76	0.68
1:A:348:ILE:HD11	1:A:373:PRO:HD3	1.77	0.67
1:A:690:LEU:HD12	1:A:855:VAL:HG13	1.76	0.67
1:B:252:LYS:HG2	1:B:254:ASN:H	1.61	0.66
1:B:444:GLY:HA3	1:B:891:LEU:HD22	1.77	0.66
1:C:78:MET:SD	1:C:92:LEU:CD2	2.84	0.66
1:C:719:ASN:HB2	1:C:828:LEU:HD13	1.78	0.66
1:B:206:ALA:O	1:B:210:GLN:HB2	1.96	0.65
1:A:136:PHE:HA	1:A:292:LYS:HG2	1.76	0.65
1:C:375:VAL:HG11	1:C:405:LEU:HD22	1.79	0.65
1:B:302:THR:O	1:B:302:THR:HG22	1.95	0.65
1:A:459:PHE:HB3	1:A:464:GLY:HA2	1.79	0.64
1:C:36:PRO:HG3	1:C:469:GLN:HG3	1.81	0.62
1:C:915:ALA:HB2	1:C:1009:GLY:HA3	1.81	0.62
1:A:684:LEU:HD11	1:A:851:LEU:HD21	1.81	0.61
1:A:43:VAL:HG11	1:A:107:VAL:HG11	1.83	0.61
1:C:78:MET:CG	1:C:92:LEU:CD2	2.76	0.61
1:C:300:LEU:HD21	1:C:333:VAL:HG11	1.83	0.61
1:C:354:VAL:HB	1:C:984:LEU:HD12	1.82	0.61
1:A:456:MET:HA	1:A:876:LEU:HD11	1.81	0.61
1:B:171:GLY:HA3	1:B:302:THR:HG21	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:307:ARG:NH2	1:B:328:ASP:OD2	2.34	0.60
1:C:580:ALA:HB1	1:C:724:THR:HG22	1.84	0.60
1:C:904:VAL:HG11	1:C:942:ALA:HB2	1.84	0.59
1:A:340:VAL:HG11	1:A:395:MET:HB3	1.84	0.59
1:B:354:VAL:HG11	1:B:981:ALA:HB2	1.83	0.59
1:B:455:PRO:HG3	1:B:880:SER:HB2	1.83	0.59
1:B:555:LEU:HD22	1:B:917:THR:HG21	1.83	0.59
1:A:216:ALA:HB2	1:A:236:ALA:HB2	1.85	0.59
1:A:441:ALA:O	1:A:445:ILE:HG12	2.03	0.59
1:C:78:MET:SD	1:C:92:LEU:HD21	2.43	0.59
1:B:167:SER:HB3	1:C:70:ASN:HD22	1.67	0.59
1:B:45:ILE:HG12	1:B:129:VAL:HG22	1.86	0.58
1:A:355:MET:HE1	1:A:368:PRO:HG2	1.85	0.58
1:B:11:PHE:HD1	1:C:890:ALA:HB1	1.68	0.58
1:C:467:TYR:OH	1:C:928:GLN:OE1	2.20	0.58
1:B:402:ILE:HD12	1:B:405:LEU:HD12	1.86	0.58
1:C:904:VAL:HG23	1:C:907:LEU:HD12	1.86	0.58
1:C:394:THR:HG23	1:C:473:THR:HG21	1.85	0.57
1:B:989:LEU:HG	1:B:1000:GLN:HB2	1.85	0.57
1:C:990:VAL:HG13	1:C:1005:THR:HG22	1.85	0.57
1:A:931:LEU:HA	1:A:934:THR:HG22	1.86	0.57
1:C:14:VAL:HG11	1:A:890:ALA:HB2	1.87	0.57
1:A:144:ASN:HD22	1:A:149:MET:HB2	1.70	0.57
1:B:100:ALA:HB1	1:B:131:LYS:HD2	1.87	0.57
1:A:928:GLN:O	1:A:931:LEU:HG	2.04	0.57
1:A:983:ILE:HD11	1:A:1011:MET:HB3	1.85	0.57
1:A:164:ASP:OD1	1:A:165:ALA:N	2.38	0.57
1:C:293:LEU:HD13	1:C:302:THR:HG21	1.87	0.56
1:B:560:PRO:HB2	1:B:922:THR:HG23	1.87	0.56
1:B:937:LEU:HD22	1:B:1011:MET:HE2	1.87	0.56
1:C:407:ASP:OD1	1:C:408:ASP:N	2.38	0.56
1:C:933:THR:O	1:C:937:LEU:HG	2.06	0.56
1:B:958:LYS:HB2	1:B:963:ALA:HB2	1.87	0.56
1:C:703:LEU:HD21	1:C:718:PRO:HD3	1.87	0.56
1:B:958:LYS:NZ	1:B:966:ASP:OD2	2.38	0.56
1:B:57:VAL:HG23	1:B:82:SER:HB3	1.87	0.56
1:A:602:GLU:OE2	1:A:650:ARG:NH2	2.39	0.56
2:C:1105:PTY:C21	2:A:1101:PTY:H172	2.36	0.55
1:C:164:ASP:OD2	1:C:767:ARG:NH2	2.37	0.55
1:A:703:LEU:HD11	1:A:718:PRO:HG3	1.88	0.55
1:C:641:GLU:O	1:C:650:ARG:NH2	2.38	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:187:TRP:NE1	1:C:269:GLU:OE2	2.40	0.55
1:A:307:ARG:NH2	1:A:328:ASP:OD2	2.35	0.55
1:A:561:SER:HA	1:A:923:ASN:HB2	1.88	0.55
1:B:909:VAL:HG13	1:B:931:LEU:HD11	1.89	0.54
1:C:907:LEU:HD22	1:C:1017:LEU:HD23	1.90	0.54
1:A:35:TYR:HE2	1:A:564:LEU:HD11	1.72	0.54
1:B:197:GLN:HA	1:B:798:MET:HE3	1.89	0.54
1:C:34:GLN:HB2	1:C:333:VAL:HG13	1.89	0.54
1:A:137:LEU:HD22	1:A:293:LEU:HB3	1.89	0.54
1:C:11:PHE:CD1	1:A:890:ALA:HB1	2.42	0.54
1:B:408:ASP:OD2	1:B:481:SER:OG	2.24	0.54
1:C:952:LEU:HG	1:C:958:LYS:HD2	1.90	0.54
1:B:1000:GLN:HA	1:B:1003:VAL:HG12	1.90	0.54
1:C:419:VAL:HG21	1:C:434:SER:HB3	1.89	0.54
1:B:75:LEU:HD11	1:B:92:LEU:HB3	1.89	0.54
1:B:11:PHE:CD1	1:C:890:ALA:HB1	2.43	0.53
1:B:222:THR:HB	1:C:275:TYR:HB2	1.91	0.53
1:A:402:ILE:HA	1:A:405:LEU:HD12	1.89	0.53
1:B:4:PHE:CG	2:B:1101:PTY:O10	2.61	0.53
1:A:410:ILE:O	1:A:414:GLU:HG3	2.08	0.53
1:A:407:ASP:OD1	1:A:978:THR:HG21	2.08	0.53
1:B:411:VAL:HG23	1:B:971:ARG:HH12	1.74	0.53
1:B:391:ASN:O	1:B:395:MET:HG2	2.10	0.52
1:B:781:MET:SD	1:A:228:GLN:NE2	2.82	0.52
1:C:979:SER:O	1:C:983:ILE:HG12	2.08	0.52
1:C:606:VAL:HA	1:C:631:LEU:HA	1.90	0.52
1:A:445:ILE:HG21	1:A:940:LYS:HE3	1.92	0.52
1:B:252:LYS:HE2	1:B:254:ASN:HA	1.91	0.52
1:A:646:ALA:O	1:A:650:ARG:NH1	2.42	0.52
1:B:225:VAL:H	1:C:781:MET:HE3	1.73	0.52
1:B:762:PHE:CE1	1:B:769:LYS:HB2	2.44	0.52
1:A:240:LEU:HD22	1:A:245:GLU:HG2	1.92	0.52
1:A:549:VAL:O	1:A:552:MET:HB3	2.10	0.52
1:C:184:MET:HB3	1:C:771:VAL:HG22	1.92	0.52
1:C:213:GLN:HG3	1:A:56:THR:HG23	1.91	0.52
1:C:528:THR:HA	1:C:531:VAL:HG12	1.92	0.52
1:B:400:LEU:HD21	1:B:1003:VAL:HG22	1.92	0.52
1:C:174:ASP:HB3	1:C:292:LYS:HB2	1.92	0.52
1:C:876:LEU:HD21	1:C:932:LEU:HD11	1.92	0.51
1:B:588:GLN:O	1:B:589:LYS:HG2	2.10	0.51
1:C:571:VAL:HG12	1:C:630:SER:HA	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:612:VAL:HB	1:A:626:ILE:HG22	1.92	0.51
1:C:578:LEU:HD11	1:C:590:VAL:HG21	1.92	0.51
1:B:904:VAL:HG23	1:B:907:LEU:HD12	1.92	0.51
1:A:38:ILE:HG13	1:A:38:ILE:O	2.11	0.51
1:A:346:GLU:HA	1:A:349:ILE:HG22	1.92	0.51
1:C:683:GLU:OE2	1:C:826:GLU:HG3	2.11	0.51
1:A:351:VAL:HG23	1:A:981:ALA:HB1	1.93	0.51
1:A:608:SER:HG	1:A:630:SER:HG	1.59	0.51
1:C:361:ASN:HB3	1:C:364:ALA:HB3	1.92	0.50
1:B:49:TYR:CE1	1:B:121:GLU:HB2	2.47	0.50
1:A:542:LEU:O	1:A:545:TYR:HB2	2.12	0.50
1:C:226:LYS:HD3	1:C:226:LYS:N	2.26	0.50
1:B:14:VAL:HG11	1:C:890:ALA:HB2	1.93	0.50
1:B:781:MET:SD	1:A:220:GLY:HA2	2.52	0.50
1:B:739:LEU:HD13	1:B:799:VAL:HG11	1.94	0.50
1:C:356:TYR:HD1	1:C:365:THR:HG21	1.77	0.50
1:B:220:GLY:HA2	1:C:781:MET:SD	2.51	0.49
1:C:1021:PHE:HB3	1:C:1025:PHE:CE2	2.47	0.49
1:A:453:PHE:O	1:A:456:MET:HG3	2.11	0.49
1:A:979:SER:O	1:A:983:ILE:HG12	2.11	0.49
1:B:30:LEU:HD23	1:B:390:ILE:HD11	1.93	0.49
1:C:559:LEU:HD12	1:C:560:PRO:HD2	1.93	0.49
1:A:576:VAL:HG22	1:A:663:VAL:HG13	1.95	0.49
1:C:398:MET:O	1:C:402:ILE:HG12	2.12	0.49
1:A:186:ILE:HD12	1:A:268:ILE:HD12	1.93	0.49
1:A:953:MET:SD	1:A:964:THR:HG21	2.53	0.49
1:C:712:MET:SD	1:C:843:LEU:HD22	2.53	0.49
1:A:57:VAL:HG13	1:A:82:SER:HB2	1.93	0.49
1:B:588:GLN:C	1:B:590:VAL:H	2.16	0.49
1:A:728:LYS:HE3	1:A:730:ASP:OD1	2.12	0.49
1:A:843:LEU:HD13	1:A:846:GLN:OE1	2.13	0.49
1:B:211:ASN:HB3	1:B:760:ASN:HD21	1.78	0.49
1:B:445:ILE:HD13	1:B:940:LYS:HG3	1.95	0.49
1:B:36:PRO:HG2	1:B:38:ILE:HD11	1.95	0.48
1:B:58:GLN:NE2	1:B:816:LEU:HD13	2.27	0.48
1:B:858:ASP:OD1	1:B:859:TRP:N	2.45	0.48
1:C:408:ASP:HB3	1:C:485:ALA:HB2	1.95	0.48
1:A:45:ILE:HG12	1:A:129:VAL:HG22	1.95	0.48
1:C:354:VAL:HG11	1:C:981:ALA:HA	1.94	0.48
1:C:442:LEU:HD13	1:C:485:ALA:HB1	1.96	0.48
1:C:954:ASP:O	1:C:955:LYS:HG2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:310:LEU:HD12	1:B:323:ILE:HG13	1.95	0.48
1:B:351:VAL:HG13	1:B:410:ILE:HD11	1.94	0.48
1:C:222:THR:HB	1:A:275:TYR:HB2	1.96	0.48
1:A:959:GLY:HA3	1:A:963:ALA:HB3	1.95	0.48
1:B:200:PRO:HG2	1:B:749:THR:HG23	1.94	0.48
1:A:451:ALA:HB1	1:A:883:VAL:HG12	1.95	0.48
1:A:3:ASN:OD1	1:A:4:PHE:N	2.47	0.48
1:A:115:MET:O	1:A:123:GLN:NE2	2.47	0.48
1:C:363:ARG:HD2	1:C:498:LYS:HG2	1.96	0.47
1:C:585:GLU:O	1:C:589:LYS:HG2	2.14	0.47
1:B:14:VAL:O	1:B:18:ILE:HG12	2.14	0.47
1:C:576:VAL:HG22	1:C:663:VAL:HG13	1.96	0.47
1:C:65:ILE:HD11	1:C:118:LEU:HD11	1.95	0.47
1:A:907:LEU:HD11	1:A:1017:LEU:HB3	1.96	0.47
1:C:901:VAL:O	1:C:904:VAL:HG12	2.15	0.47
1:A:386:PHE:HA	2:A:1101:PTY:H322	1.97	0.47
1:A:435:MET:HA	1:A:438:ILE:HG22	1.96	0.47
1:C:74:ASN:ND2	1:C:95:GLU:OE1	2.44	0.47
1:A:958:LYS:HG2	1:A:963:ALA:HB1	1.96	0.47
1:B:202:ASP:OD2	1:B:792:ARG:NH2	2.48	0.47
1:B:222:THR:HG22	1:B:224:PRO:HD3	1.97	0.47
1:B:240:LEU:HD22	1:B:245:GLU:HG2	1.97	0.47
1:B:49:TYR:CD2	1:B:52:ALA:HB2	2.50	0.46
1:B:298:ASN:HB3	1:B:301:ASP:HB3	1.97	0.46
1:B:427:PRO:HD3	1:B:499:PRO:HB3	1.97	0.46
1:A:573:MET:HE3	1:A:626:ILE:HD11	1.97	0.46
1:A:685:ILE:HD11	1:A:822:LEU:HD12	1.97	0.46
1:B:226:LYS:HD3	1:B:226:LYS:N	2.30	0.46
1:C:142:VAL:N	1:C:287:SER:O	2.43	0.46
1:C:156:ASP:HA	1:C:181:GLN:HA	1.98	0.46
1:A:973:ARG:HB3	1:A:974:PRO:HD3	1.97	0.46
1:C:182:TYR:HB3	1:C:270:LEU:HD22	1.98	0.46
1:C:905:VAL:HG13	1:C:935:ILE:HG12	1.97	0.46
1:A:543:VAL:HA	1:A:546:LEU:HD13	1.96	0.46
1:C:888:LEU:HD21	1:C:943:ILE:HD11	1.97	0.46
1:B:559:LEU:HD23	1:B:923:ASN:HB2	1.97	0.46
1:B:219:LEU:HD23	1:C:754:TRP:HZ3	1.81	0.46
1:C:216:ALA:HB2	1:C:236:ALA:HB2	1.98	0.46
1:C:445:ILE:HG12	1:C:940:LYS:HG2	1.97	0.46
2:C:1101:PTY:H121	3:A:1106:D12:H42	1.97	0.46
1:A:933:THR:O	1:A:933:THR:HG22	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:990:VAL:HG13	1:A:1005:THR:HG22	1.98	0.46
1:B:287:SER:OG	1:B:288:GLY:N	2.48	0.46
1:C:11:PHE:HD1	1:A:890:ALA:HB1	1.81	0.46
1:C:845:GLU:HG2	1:C:857:TYR:CE2	2.51	0.46
1:B:49:TYR:HD2	1:B:52:ALA:HB2	1.81	0.46
1:B:216:ALA:HB1	1:B:234:ILE:HG13	1.97	0.46
1:A:921:LEU:HD13	1:A:1002:ALA:HA	1.98	0.45
1:A:1024:VAL:O	1:A:1027:VAL:HG22	2.16	0.45
1:B:141:GLY:HA2	1:B:288:GLY:HA2	1.98	0.45
1:B:983:ILE:HD11	1:B:1011:MET:HB3	1.98	0.45
1:A:399:VAL:O	1:A:402:ILE:HG22	2.17	0.45
1:A:741:VAL:HG12	1:A:793:ALA:HA	1.98	0.45
1:C:210:GLN:NE2	1:C:250:LEU:O	2.47	0.45
1:C:546:LEU:HA	1:C:549:VAL:HG12	1.97	0.45
1:A:393:LEU:HD21	1:A:466:ILE:HG12	1.98	0.45
1:B:58:GLN:HA	1:B:62:THR:HB	1.99	0.45
1:B:988:PRO:HA	1:B:991:ILE:HG12	1.99	0.45
1:A:355:MET:CE	1:A:410:ILE:HG21	2.45	0.45
1:B:346:GLU:O	1:B:350:LEU:HG	2.16	0.45
1:C:465:ALA:O	1:C:469:GLN:HG2	2.16	0.45
1:C:582:ALA:HA	1:C:586:ARG:HH21	1.82	0.45
1:A:405:LEU:CD2	1:A:481:SER:HB2	2.47	0.45
1:A:571:VAL:HG12	1:A:630:SER:HA	1.99	0.45
1:A:686:ASP:HB2	1:A:695:LEU:HD13	1.99	0.45
1:B:302:THR:O	1:B:302:THR:CG2	2.63	0.45
1:C:105:VAL:HG12	1:A:105:VAL:HG11	1.98	0.45
1:C:330:THR:N	1:C:331:PRO:HD2	2.32	0.45
1:C:544:LEU:HD22	1:C:1021:PHE:HZ	1.82	0.45
1:A:65:ILE:HG23	1:A:118:LEU:HD21	1.99	0.45
1:B:552:MET:HG2	1:B:913:LEU:HD12	1.98	0.45
1:B:1027:VAL:O	1:B:1031:ARG:HG2	2.17	0.45
1:A:405:LEU:HD23	1:A:481:SER:HB2	1.99	0.45
1:C:119:PRO:O	1:C:122:VAL:HG22	2.17	0.45
1:B:228:GLN:HG3	1:C:583:THR:HG21	1.99	0.44
1:A:555:LEU:HB2	1:A:913:LEU:HD23	1.98	0.44
1:A:606:VAL:HA	1:A:631:LEU:HA	1.99	0.44
1:A:672:VAL:HG23	1:A:673:GLU:HG2	1.99	0.44
1:B:572:PHE:HB2	1:B:666:PHE:O	2.17	0.44
1:A:388:PHE:CE2	1:A:472:ILE:HG21	2.52	0.44
1:A:867:ARG:NH1	1:A:868:LEU:HD21	2.33	0.44
1:C:1:MET:H1	2:C:1102:PTY:H321	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:575:MET:HA	1:C:626:ILE:HG22	1.99	0.44
1:C:800:PRO:HG2	1:C:803:ALA:HB2	1.99	0.44
1:A:375:VAL:HG23	1:A:480:LEU:HB3	1.98	0.44
1:A:383:LEU:HD21	1:A:473:THR:HG22	1.99	0.44
1:B:192:GLU:HB3	1:B:265:VAL:HG12	2.00	0.44
1:B:411:VAL:HG21	1:B:944:LEU:CD1	2.48	0.44
1:B:719:ASN:ND2	1:B:826:GLU:OE1	2.46	0.44
1:C:837:THR:O	1:C:841:MET:HG3	2.17	0.44
1:C:415:ASN:ND2	1:C:434:SER:HB2	2.33	0.44
1:B:617:PHE:HE2	1:B:666:PHE:HZ	1.66	0.44
1:C:818:ARG:NH2	1:C:821:GLY:O	2.43	0.44
1:A:301:ASP:OD1	1:A:302:THR:N	2.51	0.44
1:B:572:PHE:HD1	1:B:631:LEU:HD11	1.82	0.44
1:B:702:LEU:HD12	1:B:851:LEU:HD11	1.99	0.44
1:B:730:ASP:OD1	1:B:806:SER:OG	2.32	0.44
1:C:375:VAL:HG13	1:C:480:LEU:HB2	1.99	0.44
1:B:396:PHE:CD1	1:B:1003:VAL:HG11	2.53	0.43
1:B:411:VAL:HG23	1:B:971:ARG:HH22	1.83	0.43
1:A:416:VAL:HG22	1:A:434:SER:OG	2.18	0.43
1:A:456:MET:SD	1:A:471:SER:HB3	2.58	0.43
1:B:416:VAL:HG22	1:B:434:SER:OG	2.18	0.43
1:A:671:ILE:HG21	1:A:674:LEU:HB2	2.01	0.43
1:B:915:ALA:HB2	1:B:1009:GLY:HA3	1.99	0.43
1:B:53:ASP:O	1:B:57:VAL:HG22	2.19	0.43
1:C:358:PHE:CG	1:C:977:MET:HG2	2.54	0.43
1:C:401:ALA:O	1:C:405:LEU:HG	2.18	0.43
2:C:1103:PTY:H352	2:C:1103:PTY:H321	1.78	0.43
1:A:406:VAL:O	1:A:410:ILE:HG12	2.19	0.43
1:B:149:MET:HB3	1:B:153:ASP:HB2	2.01	0.43
1:B:355:MET:SD	1:B:368:PRO:HG3	2.58	0.43
1:B:901:VAL:HG11	1:B:943:ILE:HG13	2.01	0.43
2:B:1104:PTY:H351	2:A:1102:PTY:H341	2.00	0.43
1:C:281:PHE:HE1	1:C:326:PRO:HB3	1.83	0.43
1:C:416:VAL:O	1:C:420:MET:HG3	2.19	0.43
1:B:537:SER:OG	1:B:540:ARG:NH2	2.44	0.43
1:C:496:MET:O	1:C:496:MET:HG2	2.19	0.43
1:C:47:ALA:HB2	1:C:127:VAL:HG12	2.01	0.43
1:C:571:VAL:HG23	1:C:668:LEU:HD11	2.01	0.43
1:B:545:TYR:HB2	1:B:1021:PHE:HE2	1.84	0.42
1:C:988:PRO:HA	1:C:991:ILE:HG12	2.00	0.42
2:C:1104:PTY:H112	2:C:1104:PTY:H142	1.77	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:49:TYR:HB2	1:A:122:VAL:HG22	2.01	0.42
1:C:986:VAL:HG21	1:C:1007:VAL:CG2	2.50	0.42
1:A:551:GLY:O	1:A:554:TYR:HB3	2.19	0.42
1:A:1016:VAL:HG23	1:A:1017:LEU:HD13	2.01	0.42
1:B:737:GLN:HG3	1:A:250:LEU:HD23	2.01	0.42
1:B:347:ALA:O	1:B:351:VAL:HG23	2.18	0.42
1:C:166:ILE:HD11	1:C:310:LEU:HD21	2.01	0.42
1:A:342:LYS:HD3	1:A:342:LYS:HA	1.84	0.42
1:C:758:TYR:OH	1:C:761:ASP:OD1	2.23	0.42
1:B:52:ALA:HB1	1:B:56:THR:HB	2.01	0.42
1:C:57:VAL:HA	1:C:60:THR:HG22	2.00	0.42
1:B:997:SER:HA	1:B:1000:GLN:HG2	2.02	0.42
1:C:415:ASN:HD22	1:C:434:SER:HB2	1.84	0.42
1:B:897:ILE:N	1:B:898:PRO:HD2	2.34	0.42
1:A:2:PRO:HB3	1:A:490:PRO:HG2	2.02	0.42
1:A:407:ASP:OD2	1:A:940:LYS:HE2	2.19	0.42
1:A:776:GLU:HB3	1:A:779:TYR:HD2	1.85	0.42
1:B:2:PRO:O	1:B:6:ILE:HG13	2.20	0.42
1:B:254:ASN:HD22	1:B:258:SER:CB	2.33	0.42
1:B:416:VAL:HG12	1:B:420:MET:HE3	2.01	0.42
1:B:801:PHE:O	1:B:805:SER:OG	2.29	0.42
1:B:953:MET:HE1	1:B:1030:ARG:HD3	2.02	0.42
1:C:427:PRO:HB3	1:C:497:LEU:HD23	2.02	0.42
1:A:410:ILE:HD11	1:A:978:THR:CG2	2.48	0.42
3:A:1106:D12:H111	3:A:1106:D12:H81	1.65	0.42
1:B:234:ILE:HG22	1:C:727:PHE:HB3	2.01	0.41
1:C:12:ALA:O	1:C:15:ILE:HG22	2.20	0.41
1:A:401:ALA:O	1:A:405:LEU:HG	2.19	0.41
1:B:405:LEU:HD23	1:B:481:SER:HB2	2.02	0.41
1:C:679:GLY:HA3	1:C:829:GLY:O	2.19	0.41
1:A:184:MET:HB3	1:A:771:VAL:HG22	2.02	0.41
1:B:910:ILE:O	1:B:914:LEU:HD13	2.20	0.41
1:A:198:LEU:HD21	1:A:252:LYS:HD2	2.02	0.41
1:A:756:GLY:HA2	1:A:774:MET:HB2	2.03	0.41
1:B:243:THR:HG23	1:B:268:ILE:HG22	2.02	0.41
1:B:456:MET:HA	1:B:459:PHE:HE1	1.85	0.41
1:C:1:MET:SD	1:C:1:MET:N	2.93	0.41
1:A:35:TYR:CE2	1:A:564:LEU:HD11	2.52	0.41
1:C:143:ILE:HG22	1:C:286:ALA:HB2	2.02	0.41
1:C:733:GLN:OE1	1:C:743:ILE:HD12	2.21	0.41
2:C:1105:PTY:H122	2:A:1101:PTY:HC51	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:211:ASN:HB3	1:A:760:ASN:HD21	1.86	0.41
3:A:1107:D12:H51	3:A:1107:D12:H81	1.77	0.41
1:A:930:GLY:O	1:A:934:THR:HG22	2.21	0.41
1:A:952:LEU:HD11	1:A:964:THR:HA	2.03	0.41
1:B:454:VAL:N	1:B:455:PRO:HD2	2.35	0.41
1:B:974:PRO:O	1:B:978:THR:HG23	2.21	0.41
1:C:5:PHE:CE1	1:C:11:PHE:HD2	2.39	0.41
1:C:343:THR:HG23	1:C:988:PRO:HB2	2.02	0.41
1:A:336:SER:O	1:A:340:VAL:HG23	2.21	0.41
1:B:171:GLY:HA3	1:B:302:THR:CG2	2.48	0.41
1:C:393:LEU:HD13	1:C:466:ILE:HG23	2.01	0.41
1:C:425:LEU:HD13	1:C:429:GLU:HG3	2.02	0.41
1:C:1013:THR:O	1:C:1017:LEU:HB2	2.21	0.41
2:C:1102:PTY:H361	2:C:1102:PTY:H391	1.69	0.41
1:A:888:LEU:HD21	1:A:943:ILE:HG12	2.03	0.41
1:A:950:LYS:HA	1:A:953:MET:HB3	2.03	0.41
1:B:49:TYR:HE1	1:B:121:GLU:HB2	1.85	0.41
2:B:1102:PTY:H111	2:B:1102:PTY:H142	1.72	0.41
1:C:343:THR:HG21	1:C:989:LEU:HD23	2.02	0.41
1:C:383:LEU:HD21	1:C:473:THR:HG22	2.02	0.41
1:C:498:LYS:HB3	1:C:500:ILE:HG12	2.02	0.41
1:C:572:PHE:HE1	1:C:631:LEU:HD11	1.86	0.41
1:C:888:LEU:HB3	1:C:898:PRO:HB3	2.03	0.41
1:A:139:VAL:HB	1:A:327:TYR:HB3	2.03	0.41
1:A:143:ILE:HG12	1:A:322:LYS:HG2	2.02	0.41
1:A:602:GLU:O	1:A:606:VAL:HG22	2.21	0.41
1:A:847:LEU:O	1:A:851:LEU:HB2	2.21	0.41
1:B:211:ASN:HB3	1:B:760:ASN:ND2	2.36	0.41
1:C:30:LEU:HD23	1:C:30:LEU:HA	1.91	0.41
1:A:492:LEU:HD22	1:A:496:MET:HE1	2.03	0.41
1:A:567:GLU:HG2	1:A:996:GLY:HA2	2.03	0.41
1:B:262:LEU:HG	1:B:268:ILE:HD11	2.03	0.40
1:B:937:LEU:HD22	1:B:1011:MET:CE	2.49	0.40
1:C:5:PHE:CE1	1:C:487:ILE:HG23	2.55	0.40
1:C:7:ASP:OD1	1:C:7:ASP:N	2.54	0.40
1:B:30:LEU:HD12	1:B:30:LEU:HA	1.88	0.40
1:C:68:ASN:ND2	1:C:114:ALA:HB2	2.36	0.40
1:C:153:ASP:OD1	1:C:182:TYR:OH	2.39	0.40
1:B:901:VAL:O	1:B:904:VAL:HG12	2.21	0.40
1:C:159:ALA:HB3	1:C:181:GLN:HB3	2.02	0.40
1:C:251:LEU:HD21	1:C:262:LEU:HD13	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1105:PTY:C14	2:A:1101:PTY:H312	2.52	0.40
1:B:171:GLY:CA	1:B:302:THR:HG21	2.51	0.40
1:A:730:ASP:OD2	1:A:808:ARG:NH1	2.39	0.40
1:B:399:VAL:O	1:B:402:ILE:HG22	2.21	0.40
1:B:724:THR:HG23	1:B:814:PRO:HG3	2.04	0.40
1:C:70:ASN:OD1	1:C:71:GLY:N	2.51	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	1014/1057 (96%)	991 (98%)	23 (2%)	0	100	100
1	B	1014/1057 (96%)	985 (97%)	29 (3%)	0	100	100
1	C	1021/1057 (97%)	977 (96%)	44 (4%)	0	100	100
All	All	3049/3171 (96%)	2953 (97%)	96 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	814/863 (94%)	813 (100%)	1 (0%)	93	97

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	830/863 (96%)	830 (100%)	0	100	100
1	C	833/863 (96%)	832 (100%)	1 (0%)	93	97
All	All	2477/2589 (96%)	2475 (100%)	2 (0%)	93	97

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	355	MET
1	A	357	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 [i](#)

27 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	$\# Z > 2$
2	PTY	B	1105	-	37,37,49	0.31	0	40,42,54	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	D12	C	1108	-	4,4,11	0.32	0	3,3,10	0.55	0
3	D12	A	1106	-	10,10,11	0.11	0	9,9,10	0.07	0
2	PTY	B	1102	-	20,20,49	0.42	0	22,24,54	1.03	2 (9%)
2	PTY	C	1103	-	29,29,49	0.33	0	32,34,54	0.47	0
2	PTY	B	1101	-	27,27,49	0.37	0	30,32,54	0.51	0
2	PTY	A	1101	-	35,35,49	0.38	0	38,40,54	0.48	0
3	D12	A	1110	-	4,4,11	0.32	0	3,3,10	0.54	0
3	D12	B	1109	-	4,4,11	0.32	0	3,3,10	0.54	0
2	PTY	A	1104	-	27,27,49	0.50	0	29,31,54	0.63	0
3	D12	A	1105	-	4,4,11	0.10	0	3,3,10	0.18	0
2	PTY	C	1102	-	29,29,49	0.34	0	32,34,54	0.55	0
2	PTY	B	1104	-	37,37,49	0.31	0	40,42,54	0.36	0
3	D12	C	1107	-	2,2,11	0.34	0	0,1,10	0.00	-
3	D12	A	1108	-	5,5,11	0.21	0	4,4,10	0.19	0
2	PTY	B	1103	-	23,23,49	0.40	0	25,27,54	0.51	0
2	PTY	C	1101	-	29,29,49	0.36	0	32,34,54	0.43	0
2	PTY	C	1106	-	41,41,49	0.29	0	44,46,54	0.43	0
2	PTY	C	1104	-	47,47,49	0.28	0	50,52,54	0.57	2 (4%)
2	PTY	A	1102	-	42,42,49	0.35	0	45,47,54	0.47	0
3	D12	B	1106	-	3,3,11	0.56	0	2,2,10	0.32	0
3	D12	B	1107	-	3,3,11	0.41	0	2,2,10	0.74	0
3	D12	B	1108	-	5,5,11	0.14	0	4,4,10	0.13	0
3	D12	A	1107	-	10,10,11	0.41	0	9,9,10	0.33	0
3	D12	A	1109	-	4,4,11	0.32	0	3,3,10	0.55	0
2	PTY	C	1105	-	30,30,49	0.34	0	33,35,54	0.38	0
2	PTY	A	1103	-	27,27,49	0.49	0	31,32,54	0.66	1 (3%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PTY	B	1105	-	-	19/41/41/53	-
3	D12	C	1108	-	-	0/2/2/9	-
3	D12	A	1106	-	-	5/8/8/9	-
2	PTY	B	1102	-	-	12/22/22/53	-
2	PTY	C	1103	-	-	19/33/33/53	-
2	PTY	B	1101	-	-	17/31/31/53	-
2	PTY	A	1101	-	-	15/39/39/53	-
3	D12	A	1110	-	-	0/2/2/9	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	D12	B	1109	-	-	0/2/2/9	-
2	PTY	A	1104	-	-	16/30/30/53	-
3	D12	A	1105	-	-	1/2/2/9	-
2	PTY	C	1102	-	-	15/33/33/53	-
2	PTY	B	1104	-	-	26/41/41/53	-
3	D12	A	1108	-	-	1/3/3/9	-
2	PTY	B	1103	-	-	13/25/25/53	-
2	PTY	C	1101	-	-	14/33/33/53	-
2	PTY	C	1106	-	-	21/45/45/53	-
2	PTY	C	1104	-	-	27/51/51/53	-
2	PTY	A	1102	-	-	31/46/46/53	-
3	D12	B	1106	-	-	0/1/1/9	-
3	D12	B	1107	-	-	0/1/1/9	-
3	D12	B	1108	-	-	1/3/3/9	-
3	D12	A	1107	-	-	5/8/8/9	-
3	D12	A	1109	-	-	0/2/2/9	-
2	PTY	C	1105	-	-	12/34/34/53	-
2	PTY	A	1103	-	-	14/29/29/53	-

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1102	PTY	O7-C6-C1	3.13	115.09	107.93
2	B	1102	PTY	O7-C6-C5	2.87	112.77	106.13
2	C	1104	PTY	O14-P1-O13	-2.53	99.18	109.07
2	A	1103	PTY	O12-P1-O13	2.39	120.04	110.68
2	C	1104	PTY	O12-P1-O13	2.04	122.30	112.24

There are no chirality outliers.

All (284) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1101	PTY	N1-C2-C3-O11
2	B	1101	PTY	C3-O11-P1-O13
2	B	1102	PTY	N1-C2-C3-O11
2	B	1102	PTY	C3-O11-P1-O12
2	B	1102	PTY	C5-O14-P1-O11

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Mol	Chain	Res	Type	Atoms
2	B	1102	PTY	C5-O14-P1-O13
2	B	1103	PTY	N1-C2-C3-O11
2	B	1103	PTY	O14-C5-C6-C1
2	B	1103	PTY	C5-O14-P1-O13
2	B	1104	PTY	C3-O11-P1-O13
2	B	1105	PTY	N1-C2-C3-O11
2	B	1105	PTY	C5-O14-P1-O12
2	C	1101	PTY	N1-C2-C3-O11
2	C	1101	PTY	C3-O11-P1-O12
2	C	1101	PTY	C3-O11-P1-O13
2	C	1101	PTY	C3-O11-P1-O14
2	C	1101	PTY	C5-O14-P1-O12
2	C	1102	PTY	N1-C2-C3-O11
2	C	1102	PTY	O10-C8-O7-C6
2	C	1102	PTY	C5-O14-P1-O11
2	C	1102	PTY	C5-O14-P1-O12
2	C	1102	PTY	C5-O14-P1-O13
2	C	1103	PTY	N1-C2-C3-O11
2	C	1103	PTY	O10-C8-O7-C6
2	C	1104	PTY	N1-C2-C3-O11
2	C	1104	PTY	C2-C3-O11-P1
2	C	1104	PTY	C31-C30-O4-C1
2	C	1104	PTY	O10-C8-O7-C6
2	C	1104	PTY	C3-O11-P1-O12
2	C	1104	PTY	C3-O11-P1-O14
2	C	1104	PTY	C5-O14-P1-O12
2	C	1104	PTY	C5-O14-P1-O13
2	C	1106	PTY	N1-C2-C3-O11
2	A	1101	PTY	N1-C2-C3-O11
2	A	1101	PTY	O10-C8-O7-C6
2	A	1101	PTY	C5-O14-P1-O11
2	A	1101	PTY	C5-O14-P1-O12
2	A	1101	PTY	C5-O14-P1-O13
2	A	1102	PTY	N1-C2-C3-O11
2	A	1102	PTY	C11-C8-O7-C6
2	A	1102	PTY	C3-O11-P1-O13
2	A	1102	PTY	C5-O14-P1-O13
2	A	1103	PTY	C5-O14-P1-O12
2	A	1103	PTY	C5-O14-P1-O13
2	A	1104	PTY	C3-O11-P1-O13
2	C	1103	PTY	O30-C30-O4-C1
2	C	1104	PTY	O30-C30-O4-C1

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Mol	Chain	Res	Type	Atoms
2	C	1106	PTY	C31-C30-O4-C1
2	B	1101	PTY	O30-C30-O4-C1
2	C	1106	PTY	O30-C30-O4-C1
2	A	1102	PTY	O30-C30-O4-C1
2	A	1102	PTY	O10-C8-O7-C6
2	C	1105	PTY	O30-C30-O4-C1
2	B	1101	PTY	C31-C30-O4-C1
2	C	1103	PTY	C31-C30-O4-C1
2	A	1102	PTY	C31-C30-O4-C1
2	C	1102	PTY	C11-C8-O7-C6
2	C	1103	PTY	C11-C8-O7-C6
2	C	1104	PTY	C11-C8-O7-C6
2	A	1101	PTY	C11-C8-O7-C6
2	C	1105	PTY	C31-C30-O4-C1
2	C	1101	PTY	O30-C30-O4-C1
2	B	1103	PTY	C31-C30-O4-C1
2	C	1101	PTY	C31-C30-O4-C1
2	C	1102	PTY	C36-C37-C38-C39
2	A	1103	PTY	C32-C33-C34-C35
3	A	1106	D12	C11-C10-C9-C8
2	B	1103	PTY	O30-C30-O4-C1
2	B	1101	PTY	C11-C8-O7-C6
2	C	1102	PTY	C31-C30-O4-C1
3	A	1107	D12	C5-C6-C7-C8
2	B	1105	PTY	C33-C34-C35-C36
2	B	1103	PTY	O14-C5-C6-O7
2	C	1106	PTY	O4-C1-C6-O7
2	A	1103	PTY	C30-C31-C32-C33
2	C	1102	PTY	C8-C11-C12-C13
2	C	1104	PTY	C8-C11-C12-C13
2	B	1102	PTY	C11-C12-C13-C14
2	C	1102	PTY	O30-C30-O4-C1
2	C	1103	PTY	C8-C11-C12-C13
2	B	1102	PTY	C3-O11-P1-O14
2	B	1103	PTY	C3-O11-P1-O14
2	B	1105	PTY	C5-O14-P1-O11
2	C	1101	PTY	C5-O14-P1-O11
2	C	1103	PTY	C3-O11-P1-O14
2	C	1103	PTY	C5-O14-P1-O11
2	C	1104	PTY	C5-O14-P1-O11
2	C	1106	PTY	C5-O14-P1-O11
2	A	1101	PTY	C3-O11-P1-O14

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Mol	Chain	Res	Type	Atoms
2	A	1102	PTY	C5-O14-P1-O11
2	B	1101	PTY	O10-C8-O7-C6
2	B	1105	PTY	C31-C30-O4-C1
3	A	1107	D12	C6-C7-C8-C9
2	C	1104	PTY	C13-C14-C15-C16
2	B	1104	PTY	C32-C33-C34-C35
2	C	1103	PTY	C32-C33-C34-C35
2	B	1105	PTY	C15-C16-C17-C18
2	C	1104	PTY	C38-C39-C40-C41
2	A	1102	PTY	C12-C13-C14-C15
3	A	1107	D12	C3-C4-C5-C6
2	C	1103	PTY	C31-C32-C33-C34
2	B	1101	PTY	C30-C31-C32-C33
2	B	1102	PTY	C13-C14-C15-C16
2	B	1104	PTY	C39-C40-C41-C42
2	B	1105	PTY	O30-C30-O4-C1
2	C	1103	PTY	C13-C14-C15-C16
2	B	1103	PTY	C31-C32-C33-C34
2	A	1102	PTY	C14-C15-C16-C17
2	B	1105	PTY	C11-C12-C13-C14
2	B	1104	PTY	C30-C31-C32-C33
2	B	1105	PTY	C31-C32-C33-C34
3	A	1107	D12	C4-C5-C6-C7
3	A	1107	D12	C7-C8-C9-C10
2	C	1101	PTY	C33-C34-C35-C36
2	A	1103	PTY	C12-C13-C14-C15
2	A	1102	PTY	C30-C31-C32-C33
2	C	1105	PTY	C17-C18-C19-C20
2	C	1105	PTY	C13-C14-C15-C16
2	C	1106	PTY	C18-C19-C20-C21
2	A	1104	PTY	C12-C13-C14-C15
2	C	1106	PTY	C21-C22-C23-C24
2	B	1104	PTY	C36-C37-C38-C39
2	A	1101	PTY	C11-C12-C13-C14
2	C	1101	PTY	C12-C13-C14-C15
2	B	1104	PTY	C40-C41-C42-C43
2	B	1104	PTY	C12-C13-C14-C15
2	B	1104	PTY	C14-C15-C16-C17
2	B	1104	PTY	C38-C39-C40-C41
2	B	1104	PTY	C8-C11-C12-C13
2	B	1105	PTY	O10-C8-O7-C6
3	A	1106	D12	C5-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
2	C	1104	PTY	C30-C31-C32-C33
2	B	1104	PTY	C31-C32-C33-C34
2	A	1102	PTY	C38-C39-C40-C41
2	C	1104	PTY	C34-C35-C36-C37
2	B	1105	PTY	C11-C8-O7-C6
2	C	1106	PTY	C11-C8-O7-C6
3	B	1108	D12	C2-C3-C4-C5
2	B	1104	PTY	C37-C38-C39-C40
2	A	1103	PTY	C34-C35-C36-C37
2	C	1106	PTY	O10-C8-O7-C6
2	A	1102	PTY	C15-C16-C17-C18
2	B	1101	PTY	C3-O11-P1-O14
2	B	1103	PTY	C5-O14-P1-O11
2	B	1104	PTY	C3-O11-P1-O14
2	A	1102	PTY	C3-O11-P1-O14
2	A	1102	PTY	C6-C5-O14-P1
2	C	1104	PTY	C31-C32-C33-C34
2	C	1106	PTY	O4-C1-C6-C5
2	A	1103	PTY	O4-C1-C6-C5
2	B	1101	PTY	C31-C32-C33-C34
3	A	1105	D12	C1-C2-C3-C4
2	B	1105	PTY	C17-C18-C19-C20
2	A	1102	PTY	C39-C40-C41-C42
2	B	1104	PTY	C35-C36-C37-C38
2	A	1102	PTY	C20-C21-C22-C23
2	A	1104	PTY	C11-C8-O7-C6
3	A	1108	D12	C6-C7-C8-C9
2	A	1104	PTY	C13-C14-C15-C16
3	A	1106	D12	C4-C5-C6-C7
2	B	1105	PTY	C38-C39-C40-C41
2	B	1101	PTY	O14-C5-C6-O7
2	A	1102	PTY	O14-C5-C6-O7
2	A	1102	PTY	C40-C41-C42-C43
2	C	1105	PTY	C11-C8-O7-C6
2	A	1103	PTY	O4-C1-C6-O7
2	A	1104	PTY	O10-C8-O7-C6
2	A	1103	PTY	C8-C11-C12-C13
2	C	1104	PTY	C14-C15-C16-C17
2	B	1104	PTY	C31-C30-O4-C1
2	C	1102	PTY	C30-C31-C32-C33
2	C	1106	PTY	C19-C20-C21-C22
2	C	1104	PTY	C11-C12-C13-C14

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Mol	Chain	Res	Type	Atoms
2	B	1105	PTY	O14-C5-C6-C1
2	C	1103	PTY	O14-C5-C6-C1
2	A	1101	PTY	O14-C5-C6-C1
2	B	1104	PTY	N1-C2-C3-O11
2	A	1104	PTY	N1-C2-C3-O11
2	B	1102	PTY	C6-C5-O14-P1
2	C	1103	PTY	C6-C5-O14-P1
2	A	1102	PTY	C35-C36-C37-C38
2	A	1103	PTY	C11-C12-C13-C14
2	C	1104	PTY	C23-C24-C25-C26
2	B	1102	PTY	O14-C5-C6-C1
2	C	1104	PTY	O4-C1-C6-C5
2	A	1102	PTY	C34-C35-C36-C37
2	B	1105	PTY	O14-C5-C6-O7
2	C	1105	PTY	O14-C5-C6-O7
2	A	1101	PTY	C17-C18-C19-C20
2	B	1105	PTY	C37-C38-C39-C40
2	C	1104	PTY	O4-C1-C6-O7
2	C	1105	PTY	O10-C8-O7-C6
2	B	1104	PTY	C34-C35-C36-C37
2	A	1101	PTY	C14-C15-C16-C17
2	C	1104	PTY	C21-C22-C23-C24
2	A	1103	PTY	C13-C14-C15-C16
2	A	1104	PTY	C11-C12-C13-C14
2	B	1104	PTY	O14-C5-C6-C1
2	B	1101	PTY	C14-C15-C16-C17
2	B	1104	PTY	O30-C30-O4-C1
2	C	1104	PTY	C24-C25-C26-C27
2	C	1102	PTY	C5-C6-O7-C8
2	A	1104	PTY	C6-C1-O4-C30
3	A	1106	D12	C7-C8-C9-C10
2	C	1101	PTY	O4-C1-C6-C5
2	C	1103	PTY	O14-C5-C6-O7
2	C	1106	PTY	O14-C5-C6-O7
2	C	1104	PTY	C25-C26-C27-C28
2	C	1102	PTY	O4-C1-C6-O7
2	C	1102	PTY	C35-C36-C37-C38
2	A	1102	PTY	C32-C33-C34-C35
2	A	1104	PTY	C3-O11-P1-O14
2	C	1106	PTY	C6-C5-O14-P1
2	B	1103	PTY	C3-O11-P1-O12
2	B	1103	PTY	C3-O11-P1-O13

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Mol	Chain	Res	Type	Atoms
2	B	1104	PTY	C3-O11-P1-O12
2	C	1103	PTY	C3-O11-P1-O12
2	C	1103	PTY	C3-O11-P1-O13
2	C	1103	PTY	C5-O14-P1-O13
2	C	1106	PTY	C5-O14-P1-O13
2	A	1101	PTY	C3-O11-P1-O13
2	A	1102	PTY	C5-O14-P1-O12
2	B	1101	PTY	O14-C5-C6-C1
2	A	1102	PTY	O14-C5-C6-C1
2	A	1104	PTY	C2-C3-O11-P1
2	C	1103	PTY	C30-C31-C32-C33
2	A	1101	PTY	O14-C5-C6-O7
3	A	1106	D12	C9-C10-C11-C12
2	A	1102	PTY	C17-C18-C19-C20
2	B	1101	PTY	C1-C6-O7-C8
2	A	1102	PTY	C1-C6-O7-C8
2	A	1104	PTY	C5-C6-O7-C8
2	C	1106	PTY	C12-C13-C14-C15
2	C	1106	PTY	C32-C33-C34-C35
2	B	1101	PTY	C5-O14-P1-O11
2	C	1102	PTY	C3-O11-P1-O14
2	C	1106	PTY	C33-C34-C35-C36
2	B	1103	PTY	C36-C37-C38-C39
2	C	1101	PTY	C11-C12-C13-C14
2	A	1102	PTY	C13-C14-C15-C16
2	A	1104	PTY	C8-C11-C12-C13
2	C	1106	PTY	C16-C17-C18-C19
2	B	1103	PTY	C30-C31-C32-C33
2	C	1105	PTY	C15-C16-C17-C18
2	C	1104	PTY	C12-C13-C14-C15
2	C	1101	PTY	C34-C35-C36-C37
2	A	1103	PTY	C31-C30-O4-C1
2	B	1105	PTY	C35-C36-C37-C38
2	A	1103	PTY	O30-C30-O4-C1
2	A	1104	PTY	C17-C18-C19-C20
2	C	1106	PTY	C17-C18-C19-C20
2	A	1102	PTY	C31-C32-C33-C34
2	B	1104	PTY	O14-C5-C6-O7
2	C	1105	PTY	O14-C5-C6-C1
2	C	1106	PTY	C11-C12-C13-C14
2	A	1103	PTY	C5-O14-P1-O11
2	A	1101	PTY	C12-C11-C8-O7

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Mol	Chain	Res	Type	Atoms
2	C	1101	PTY	C12-C11-C8-O7
2	C	1103	PTY	C1-C6-O7-C8
2	B	1104	PTY	C12-C11-C8-O7
2	B	1104	PTY	C6-C5-O14-P1
2	B	1102	PTY	C12-C11-C8-O7
2	B	1104	PTY	O4-C30-C31-C32
2	B	1102	PTY	C12-C13-C14-C15
2	C	1105	PTY	C12-C11-C8-O7
2	A	1104	PTY	C14-C15-C16-C17
2	A	1102	PTY	C19-C20-C21-C22
2	B	1104	PTY	O30-C30-C31-C32
2	A	1101	PTY	C12-C11-C8-O10
2	B	1104	PTY	C12-C11-C8-O10
2	B	1101	PTY	C6-C5-O14-P1
2	C	1105	PTY	C14-C15-C16-C17
2	B	1101	PTY	C5-O14-P1-O13
2	A	1102	PTY	C3-O11-P1-O12
2	A	1104	PTY	C3-O11-P1-O12
2	C	1105	PTY	C12-C11-C8-O10
2	B	1105	PTY	C12-C11-C8-O7
2	A	1102	PTY	C2-C3-O11-P1
2	B	1102	PTY	C12-C11-C8-O10
2	B	1105	PTY	C12-C11-C8-O10
2	C	1104	PTY	C33-C34-C35-C36
2	B	1101	PTY	C12-C13-C14-C15
2	C	1106	PTY	C35-C36-C37-C38
2	A	1104	PTY	C12-C11-C8-O7

There are no ring outliers.

13 monomers are involved in 15 short contacts:

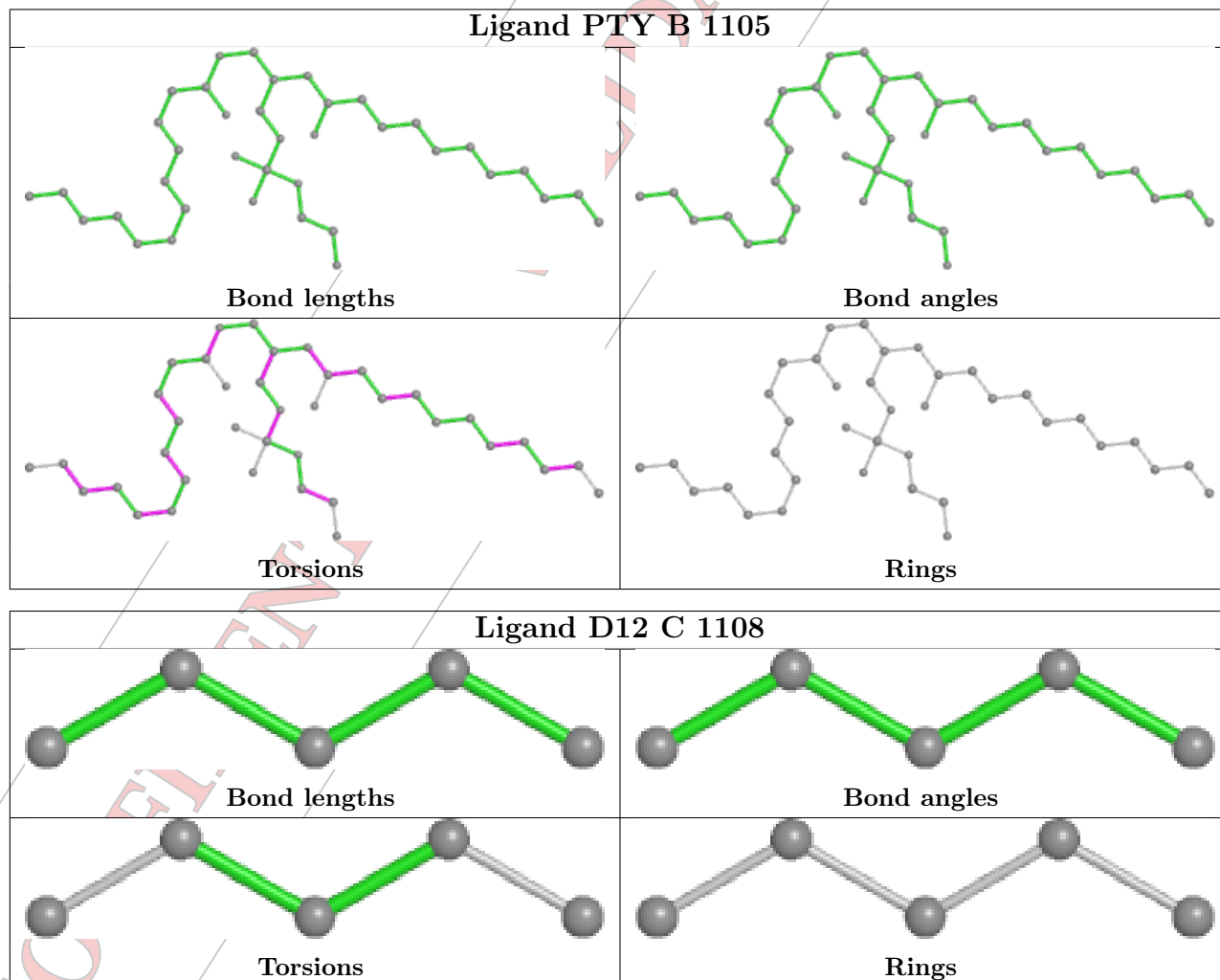
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1106	D12	2	0
2	B	1102	PTY	1	0
2	C	1103	PTY	1	0
2	B	1101	PTY	1	0
2	A	1101	PTY	4	0
2	A	1104	PTY	1	0
2	C	1102	PTY	2	0
2	B	1104	PTY	1	0
2	C	1101	PTY	1	0
2	C	1104	PTY	1	0

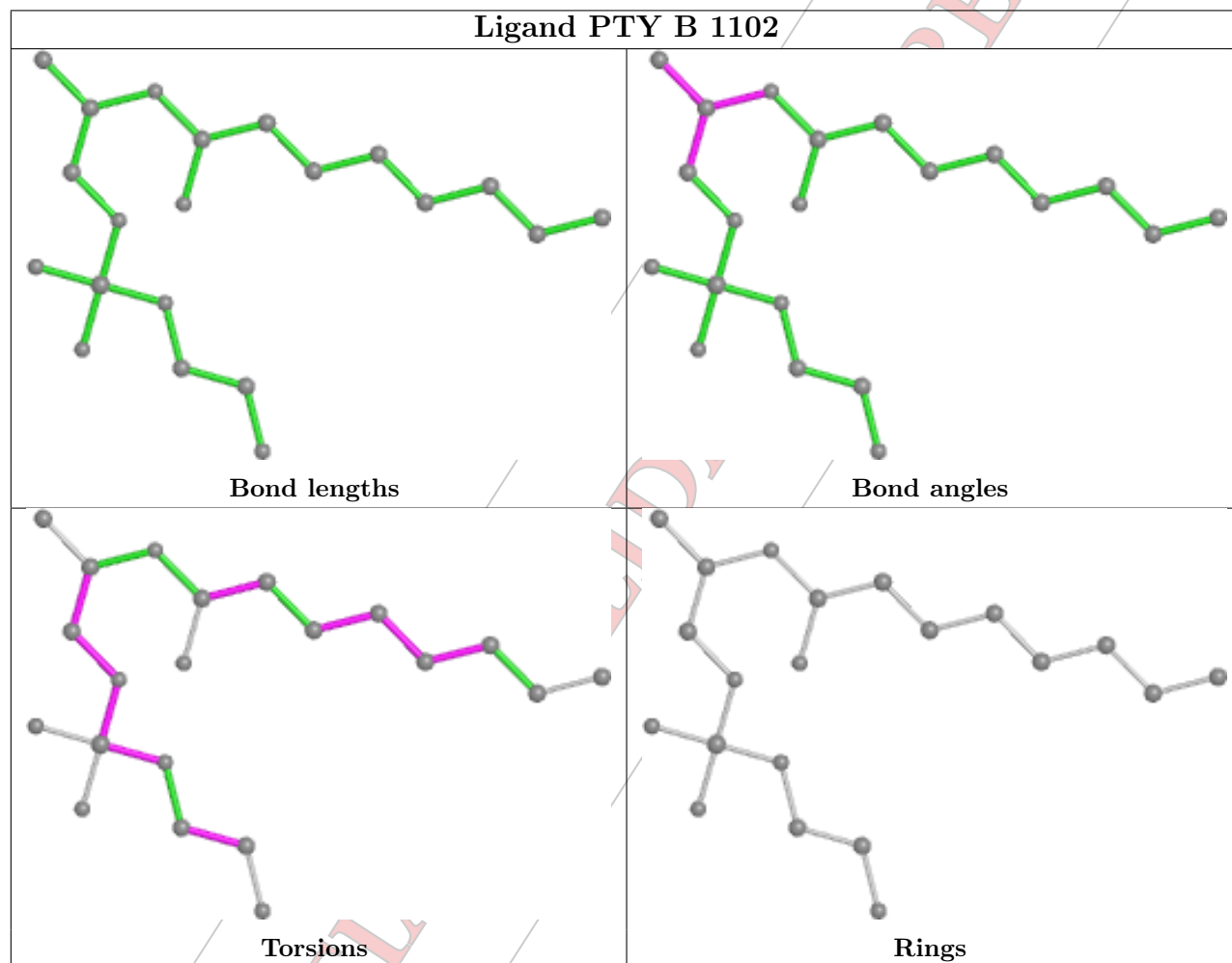
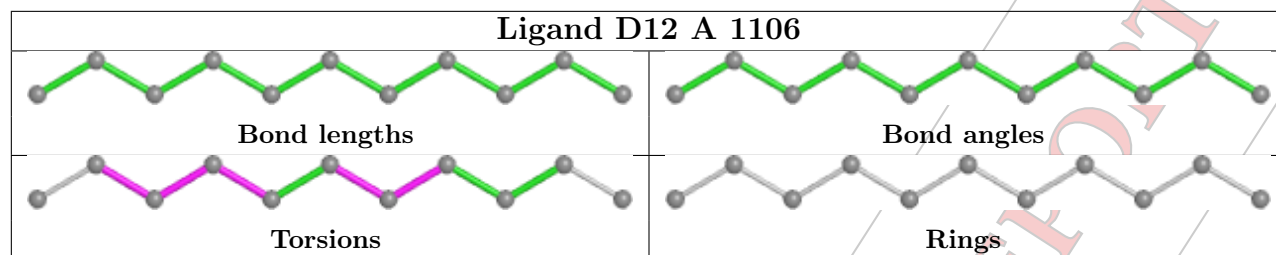
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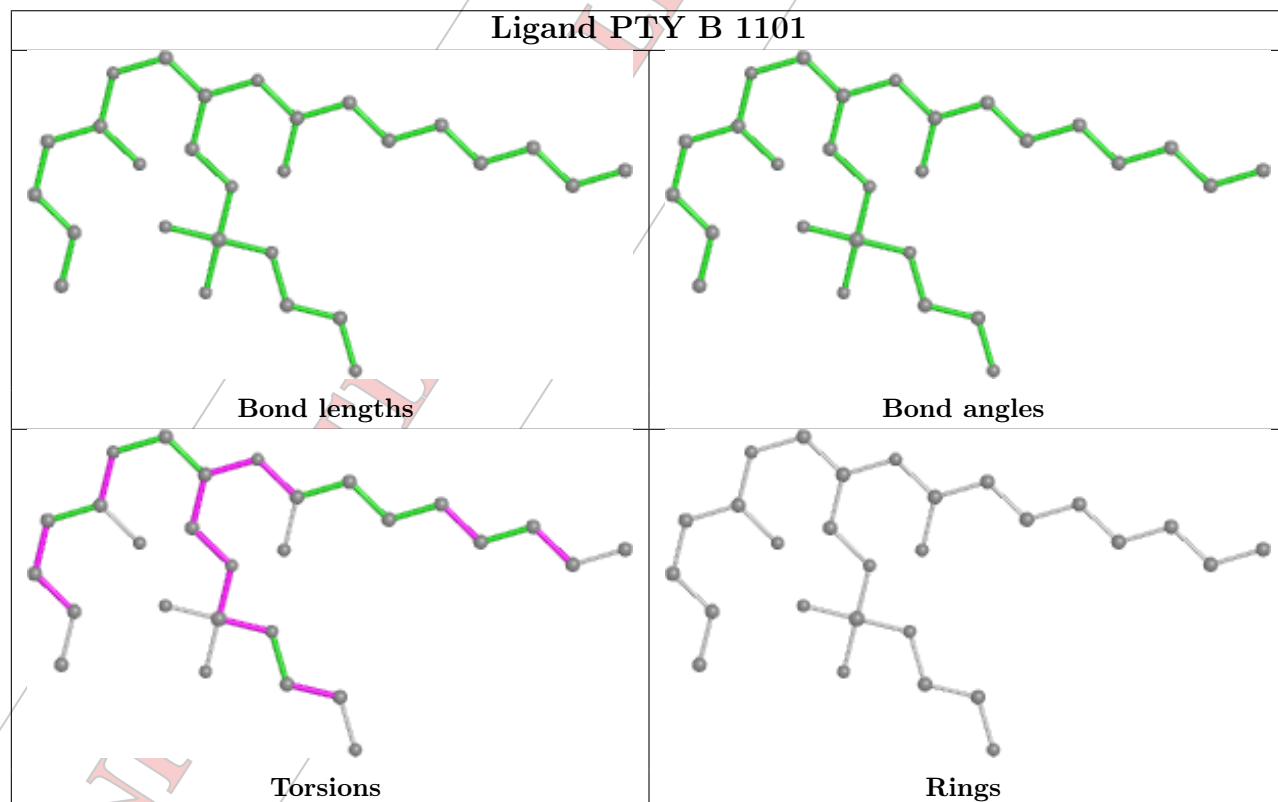
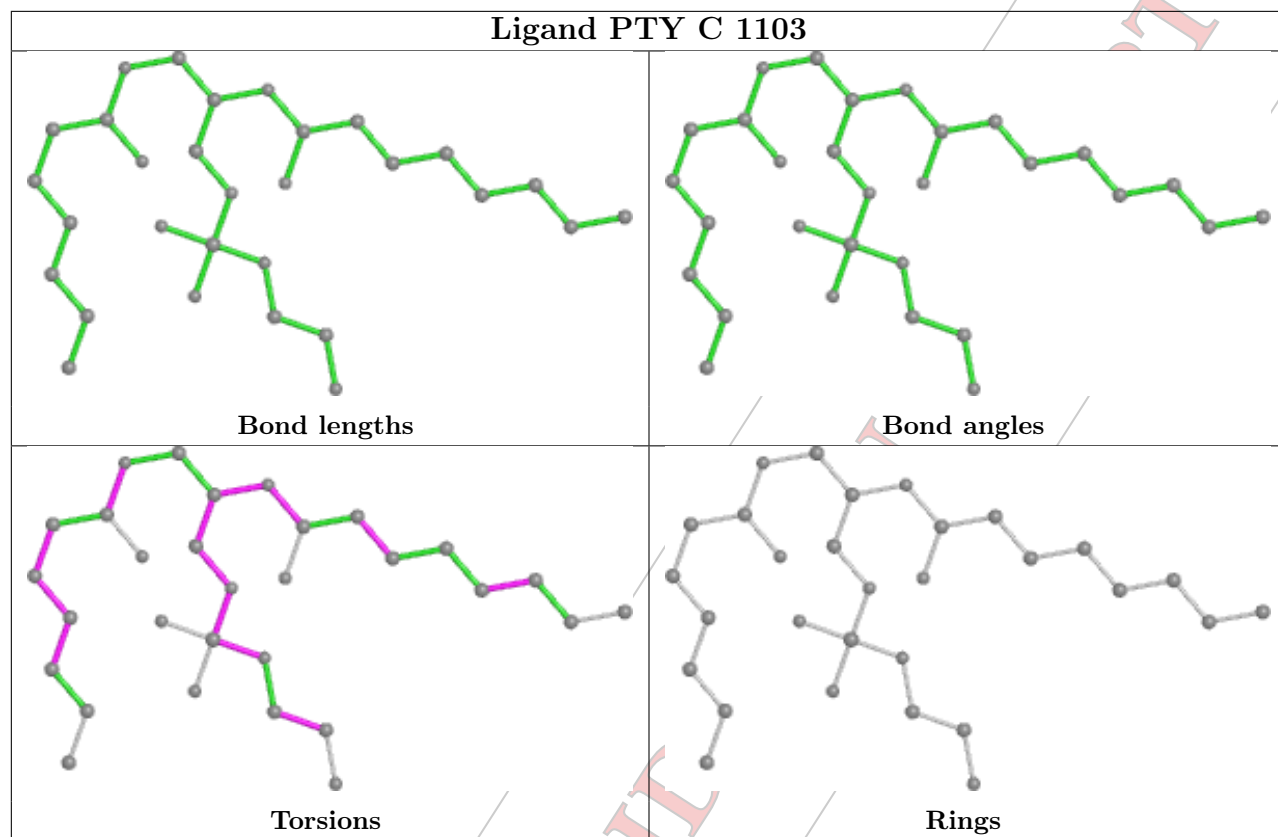
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1102	PTY	1	0
3	A	1107	D12	2	0
2	C	1105	PTY	3	0

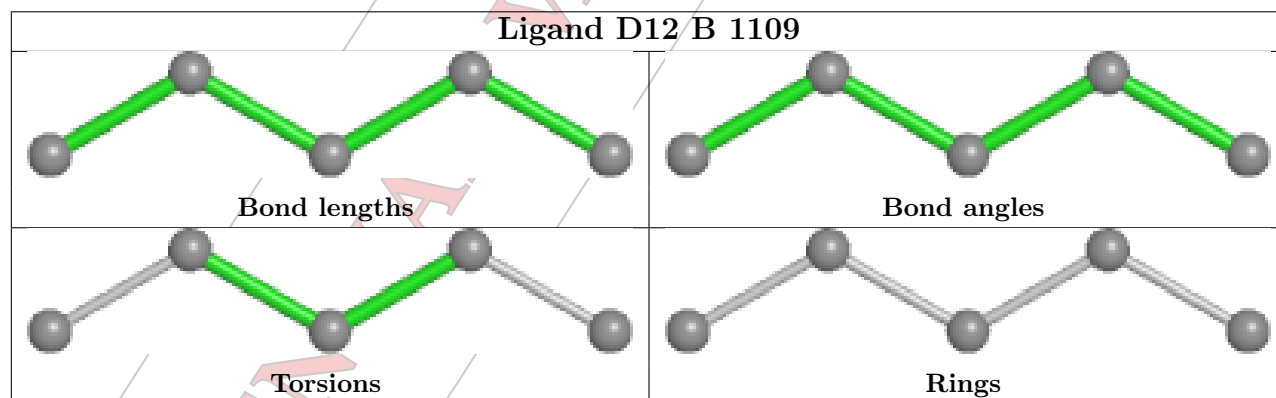
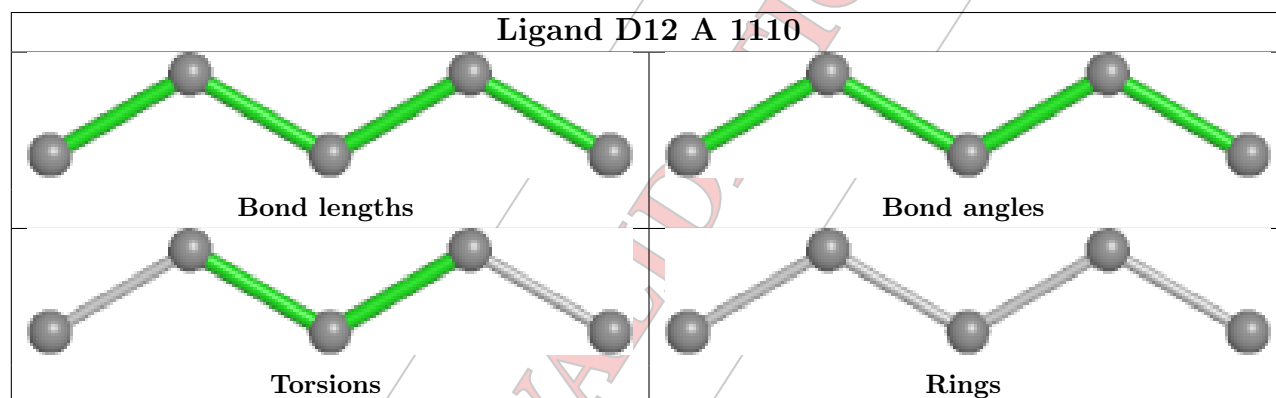
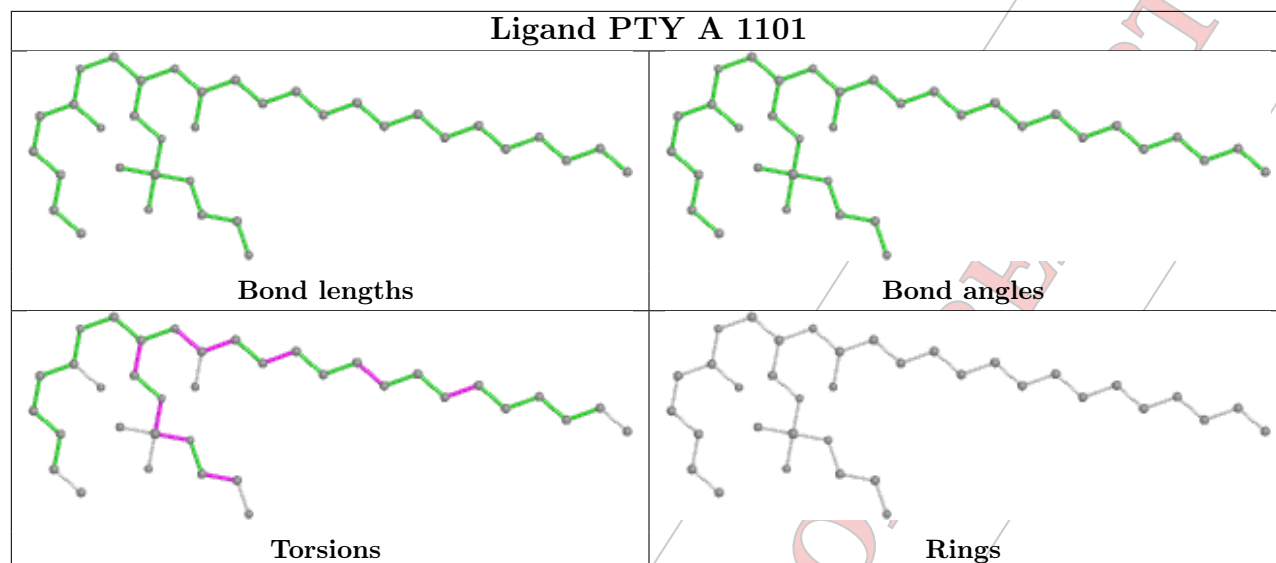
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



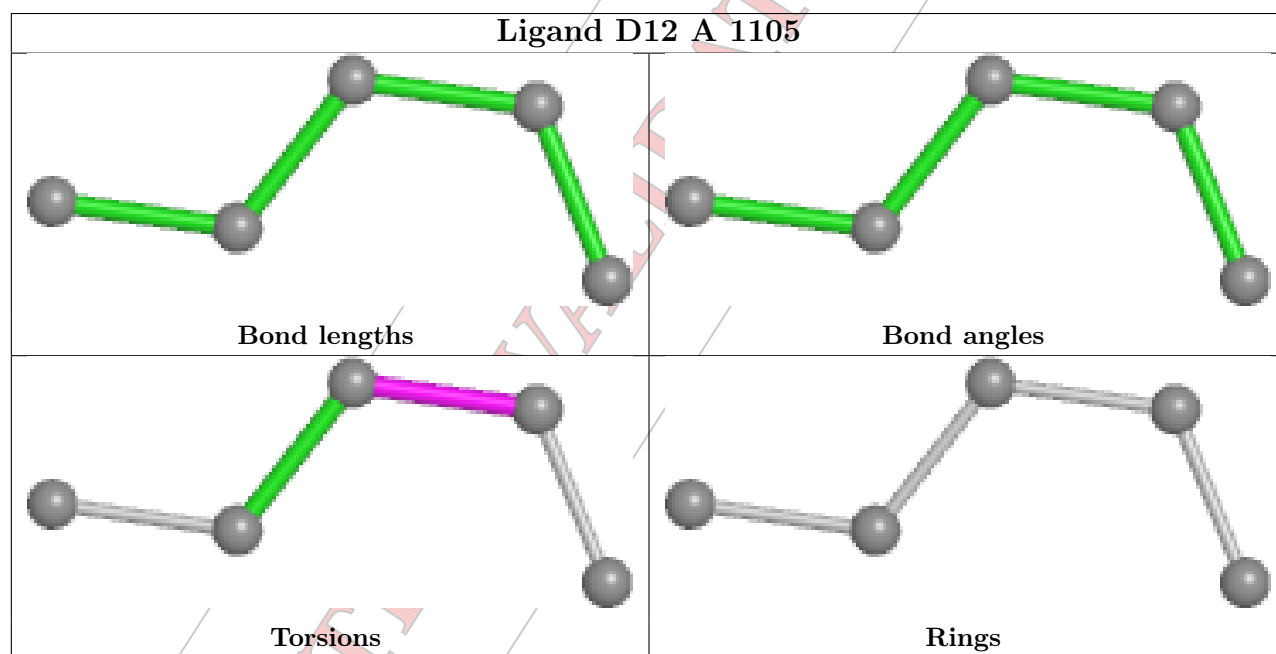
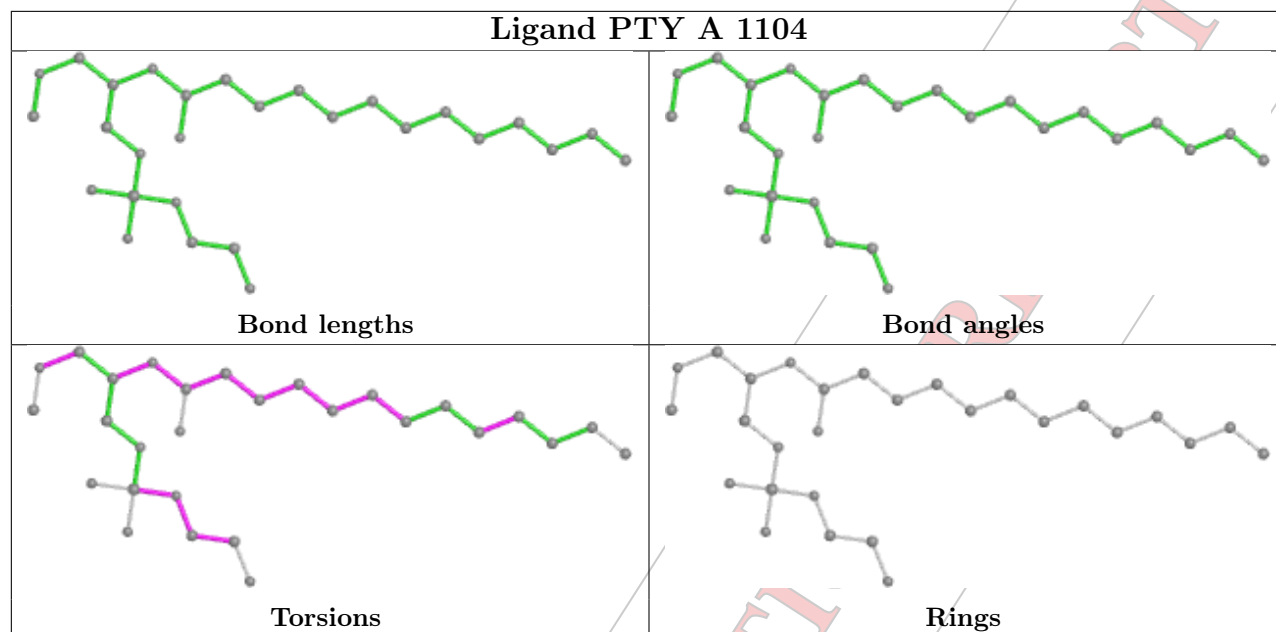


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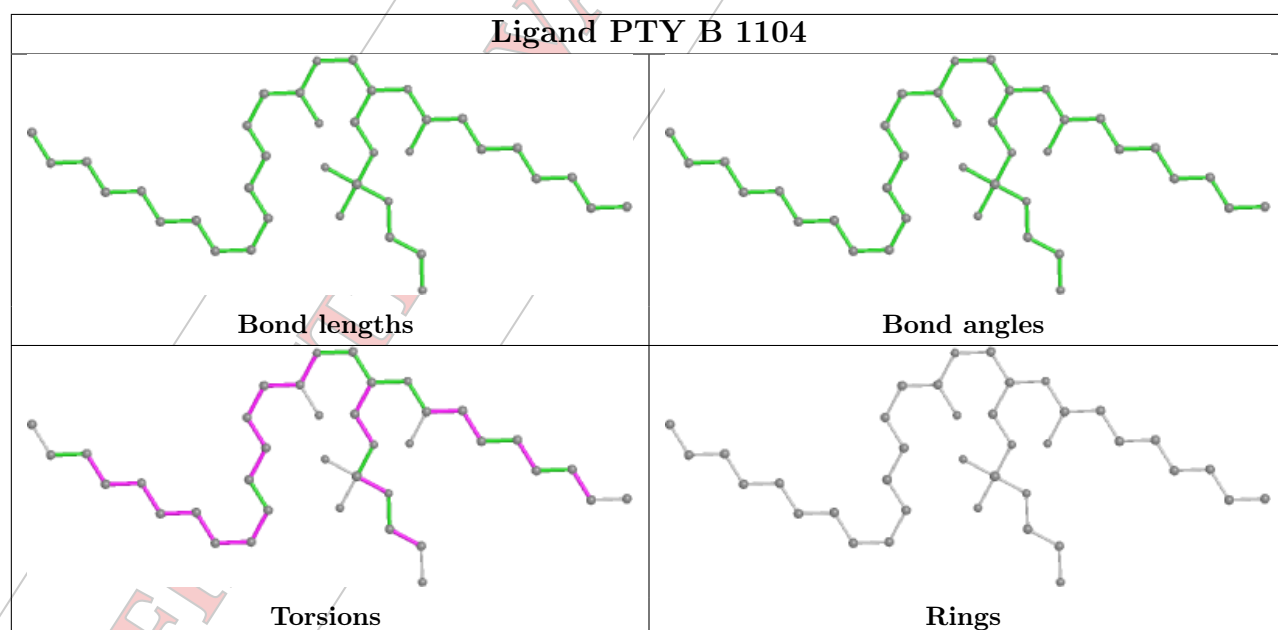
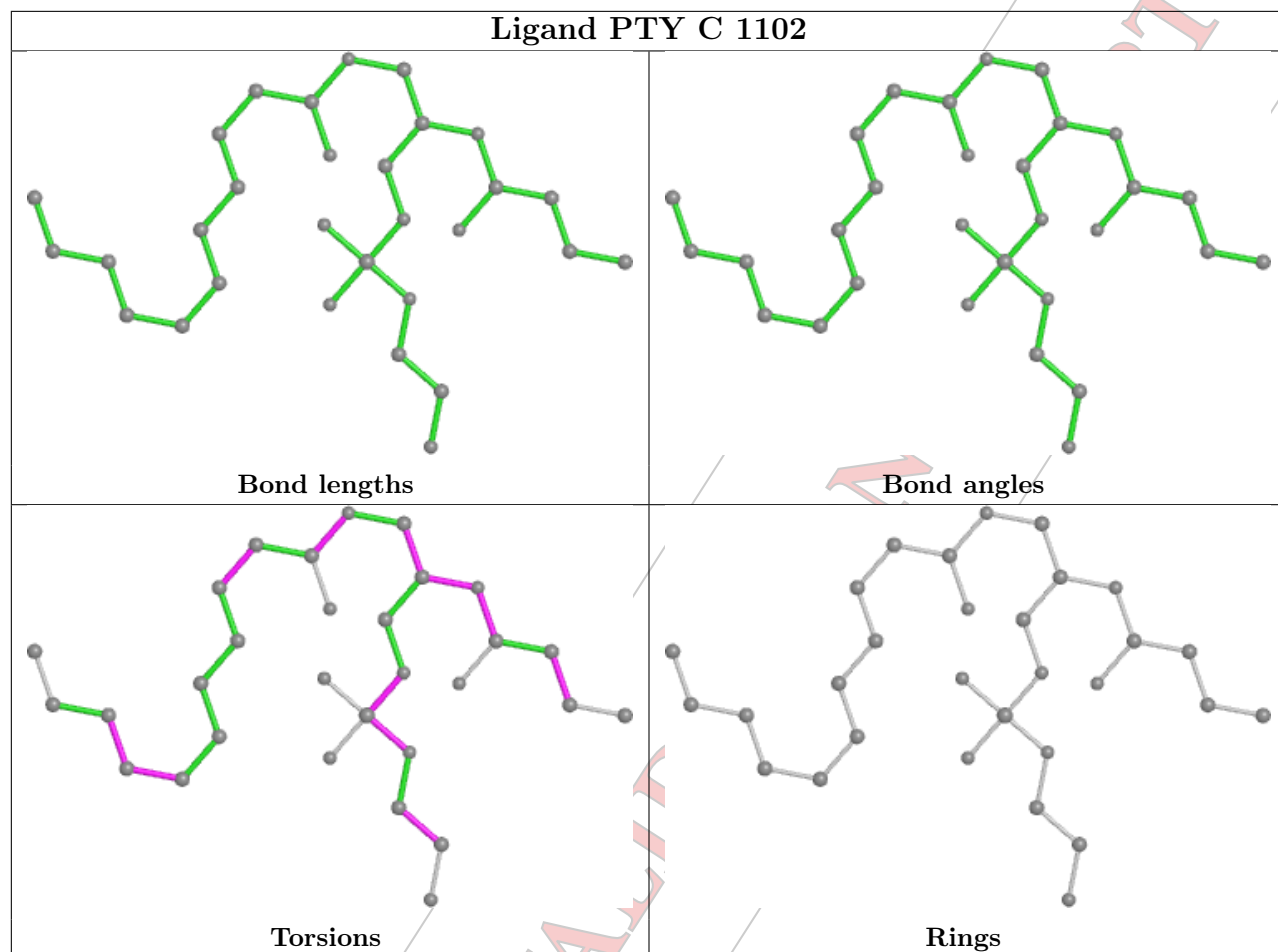


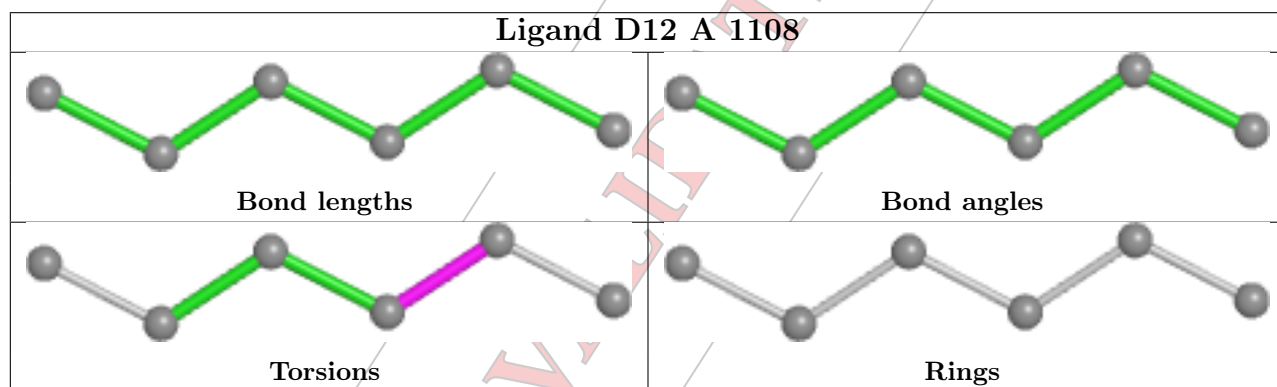
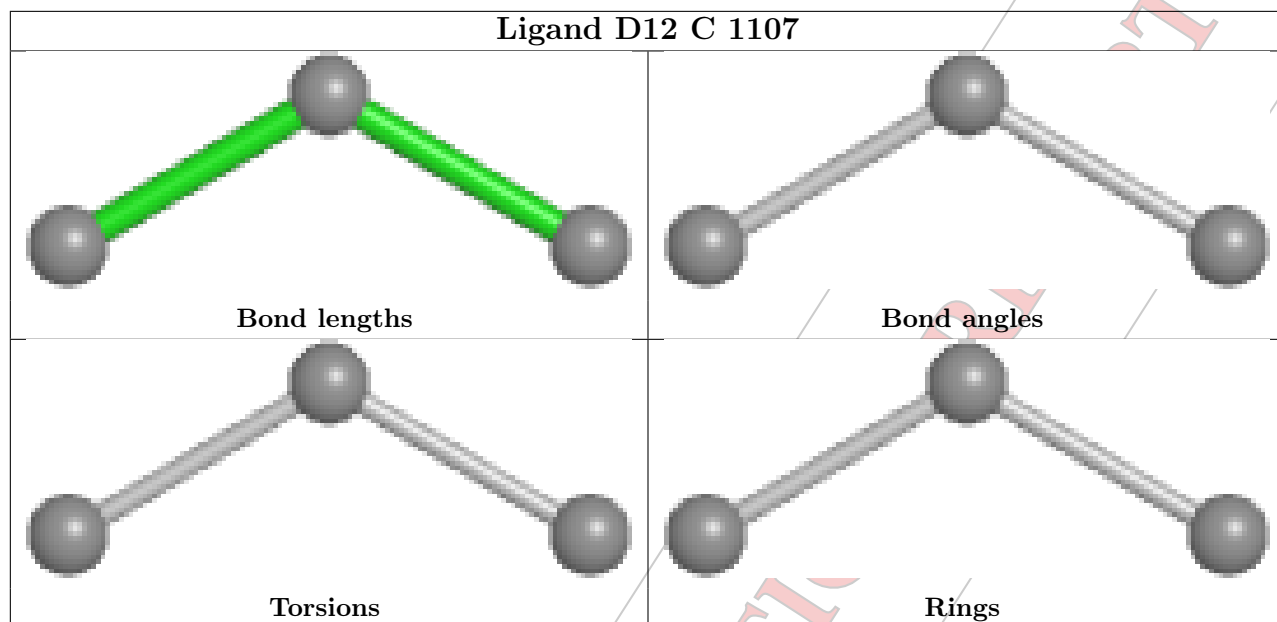


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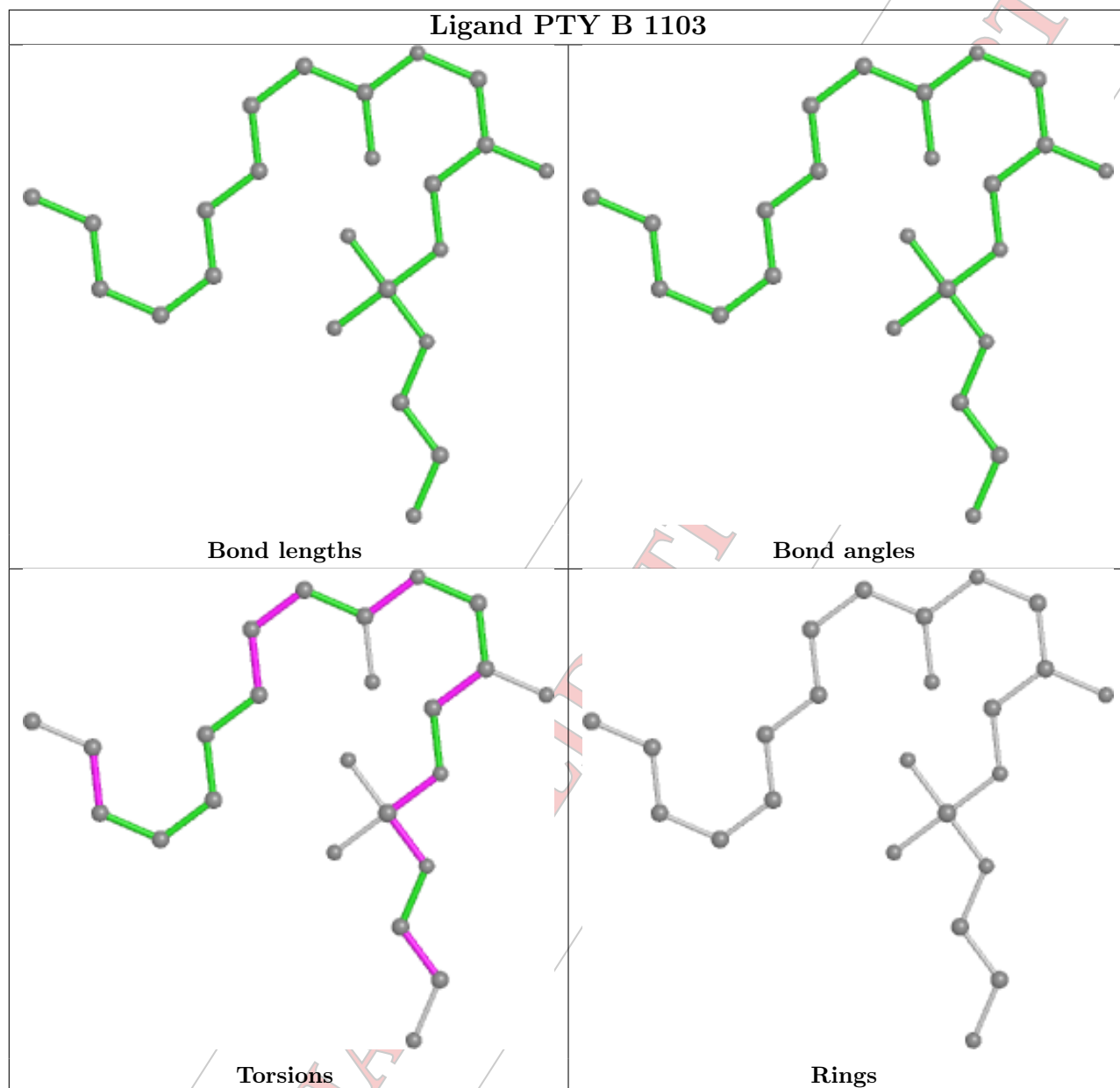


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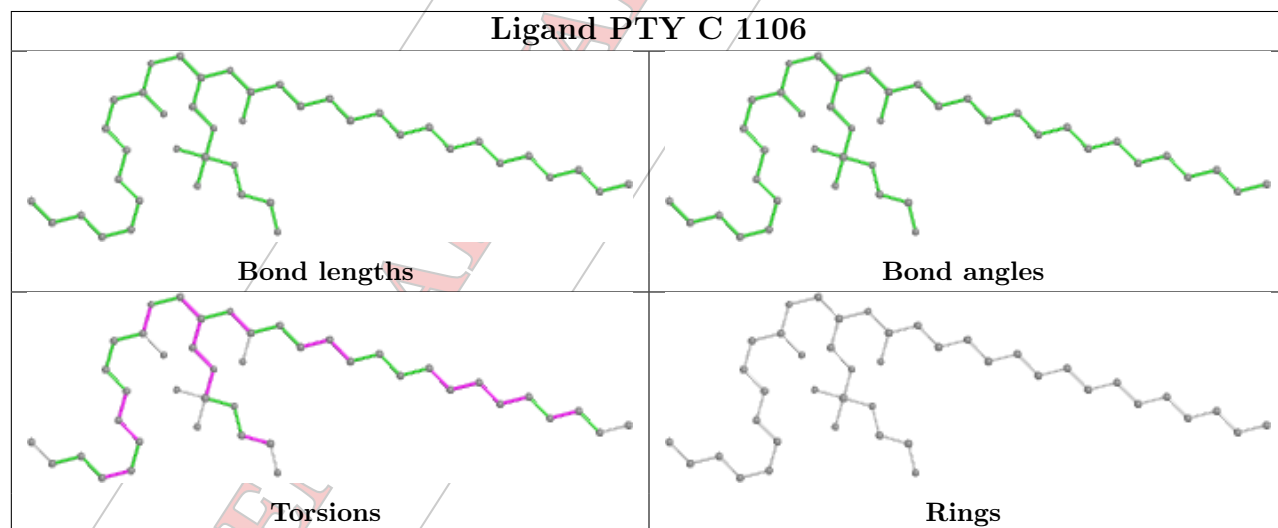
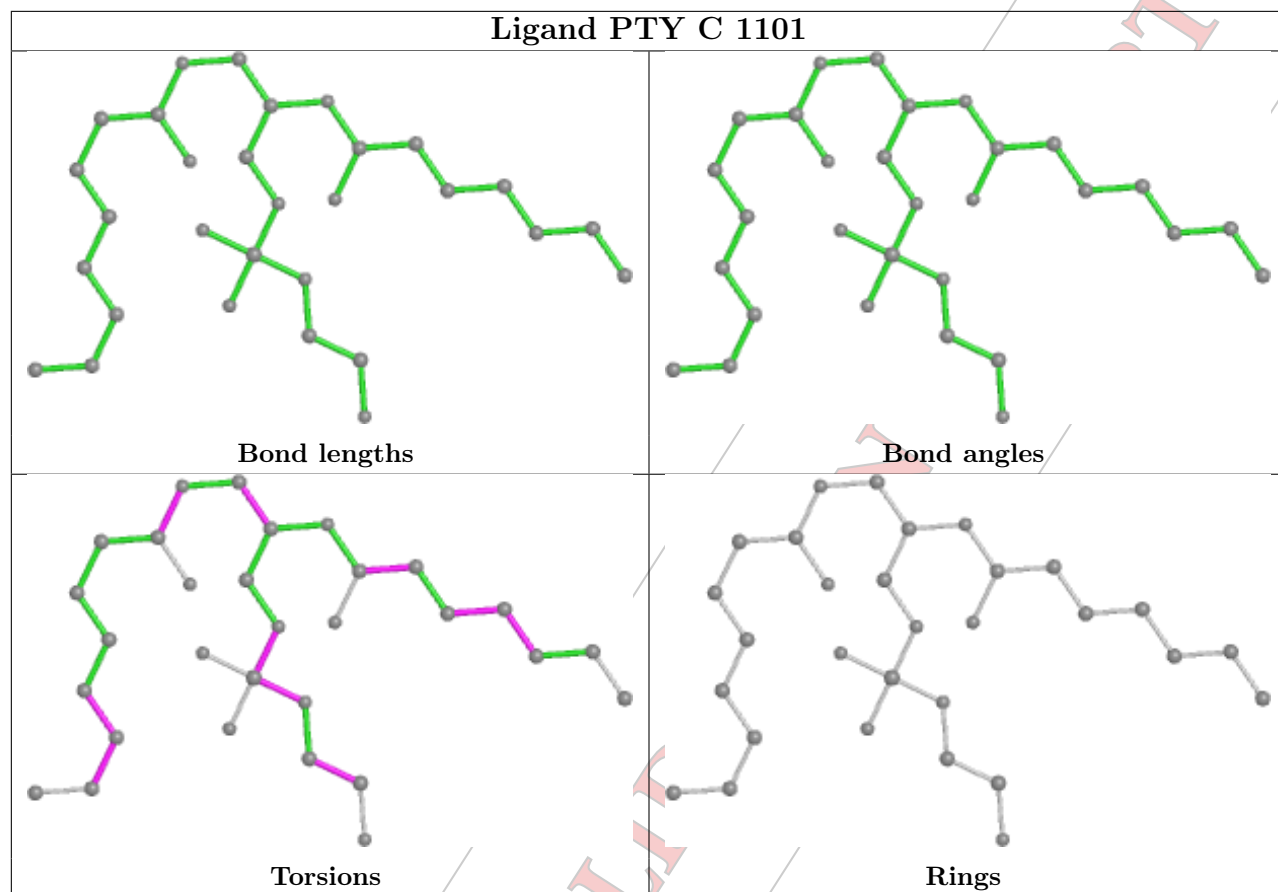




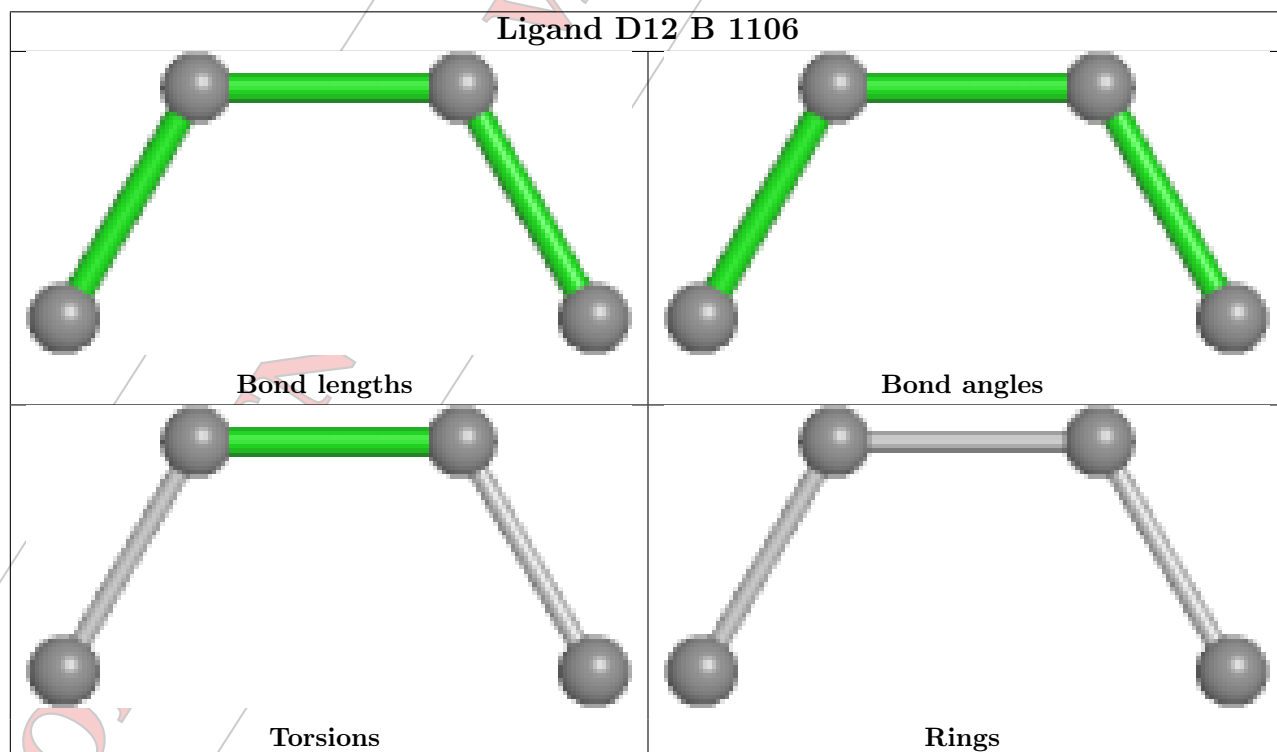
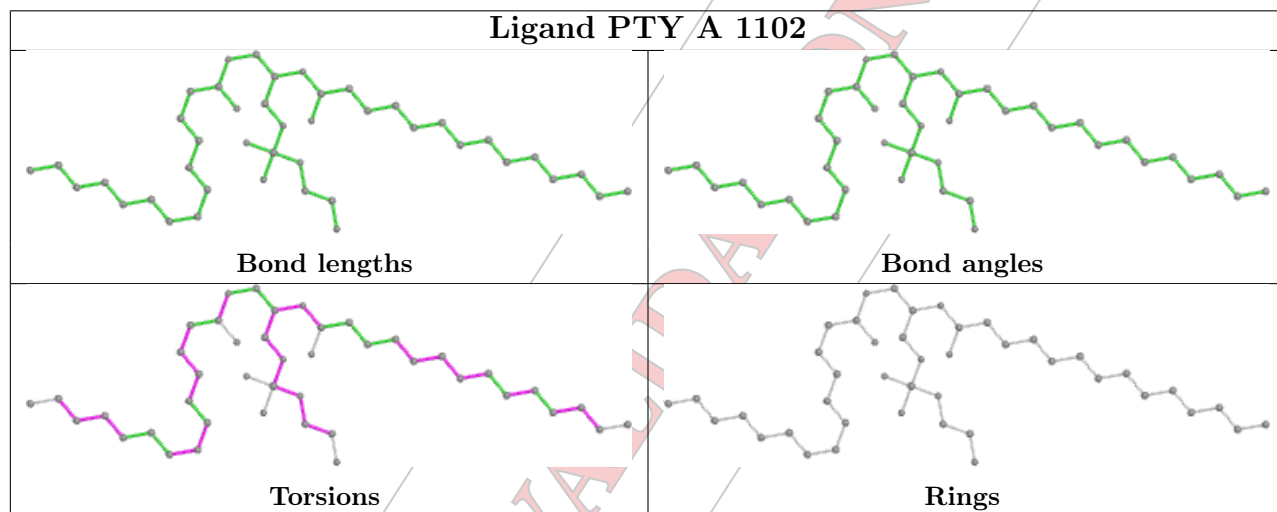
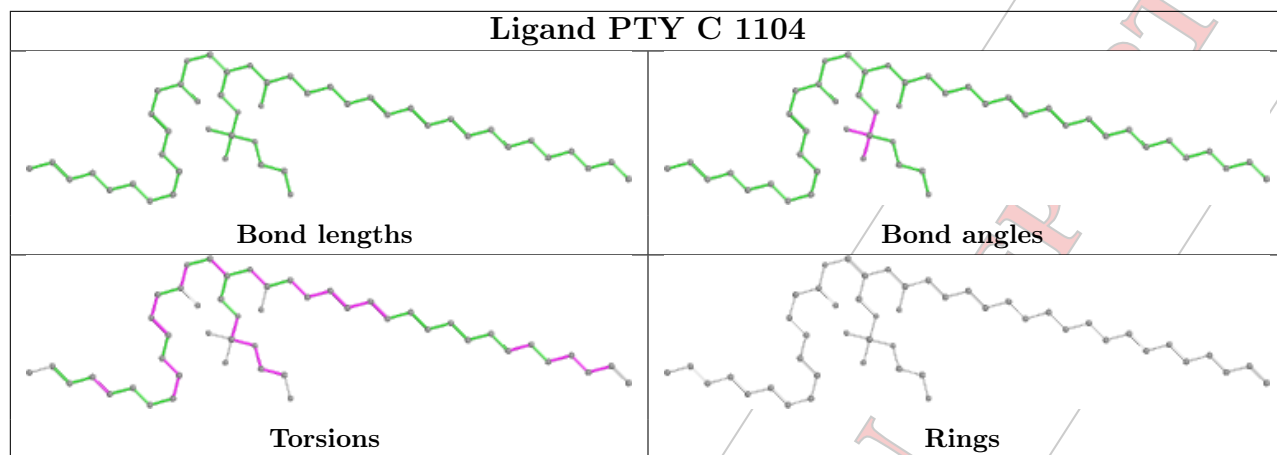
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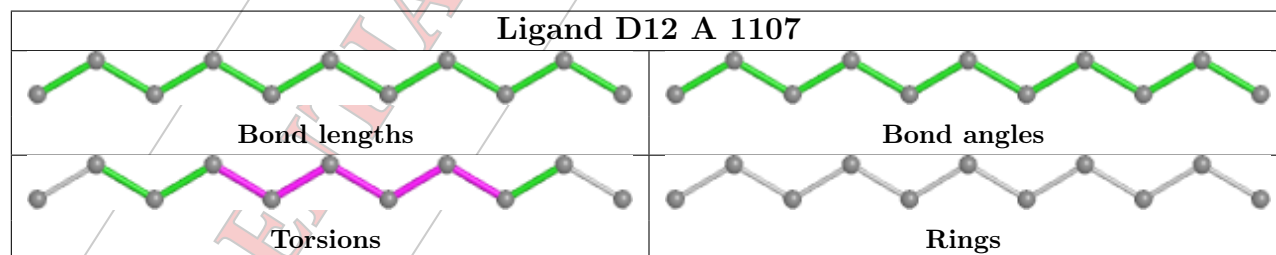
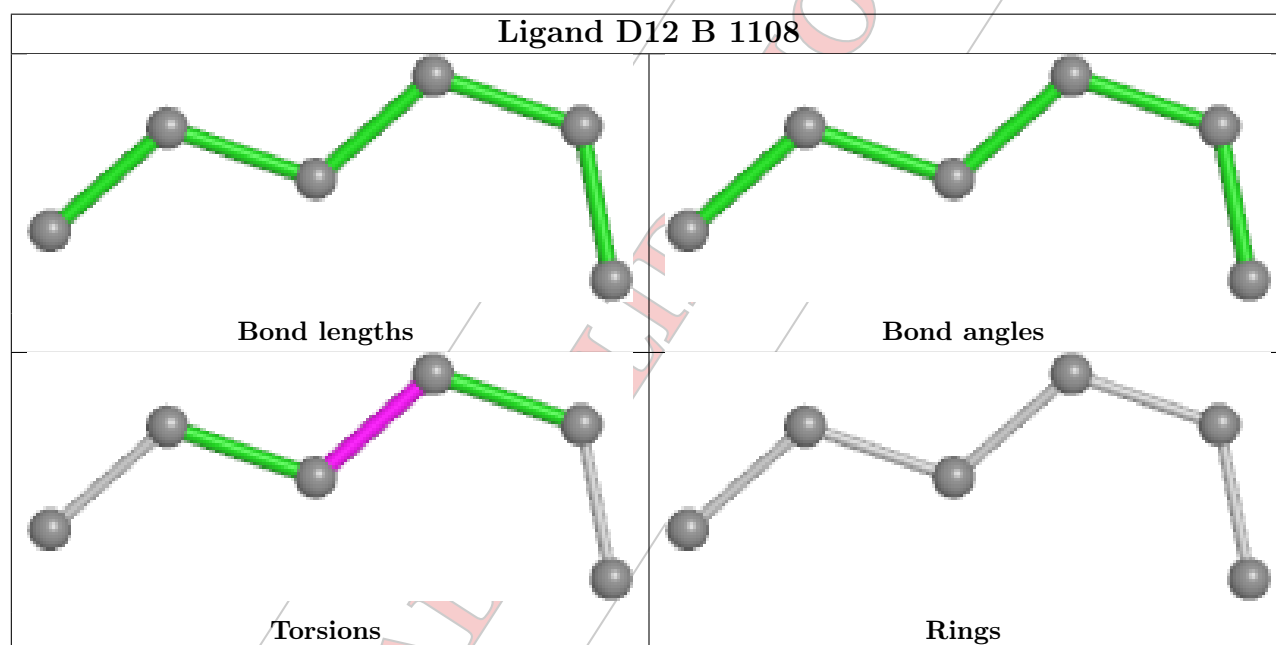
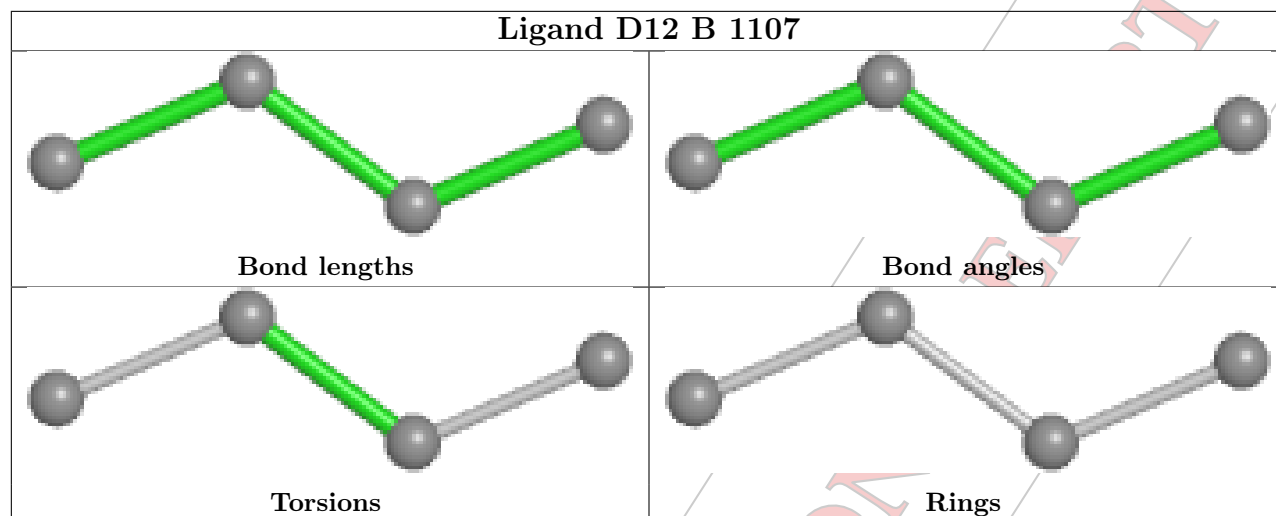


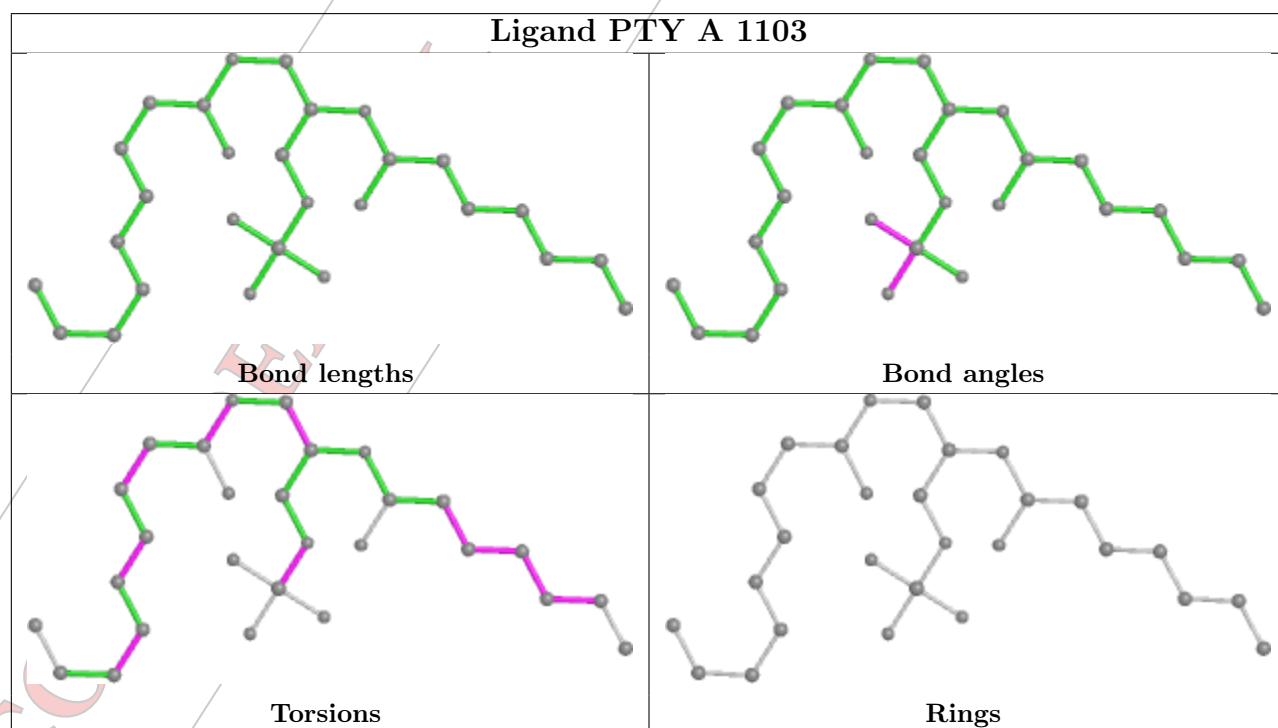
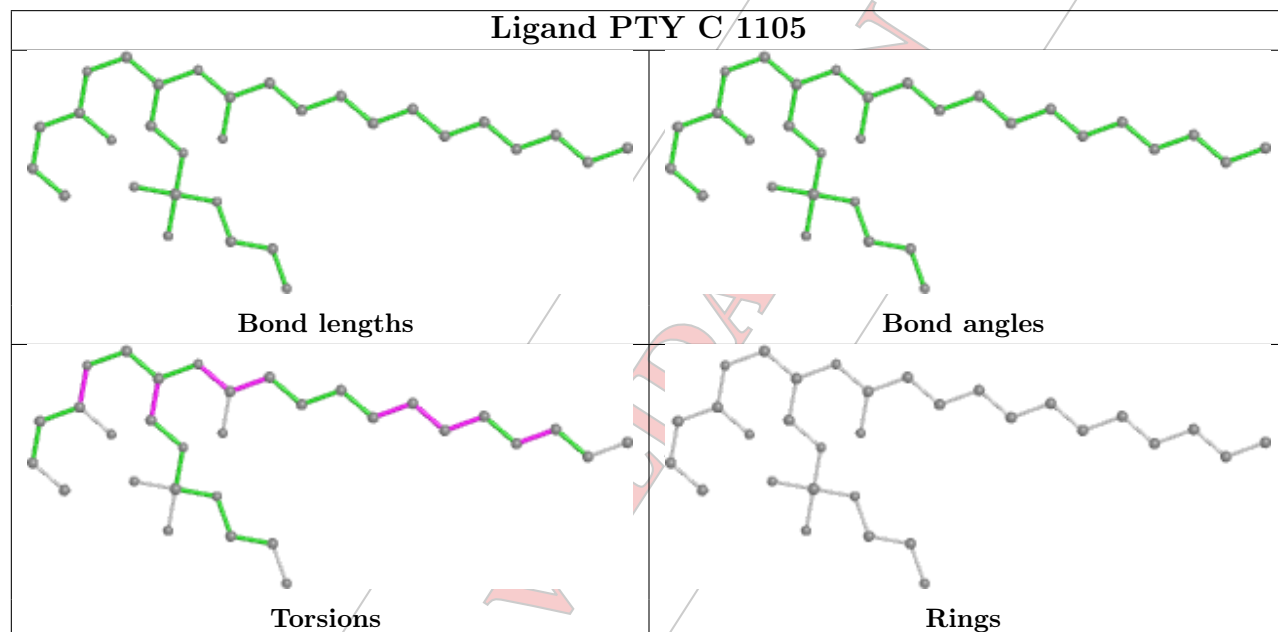
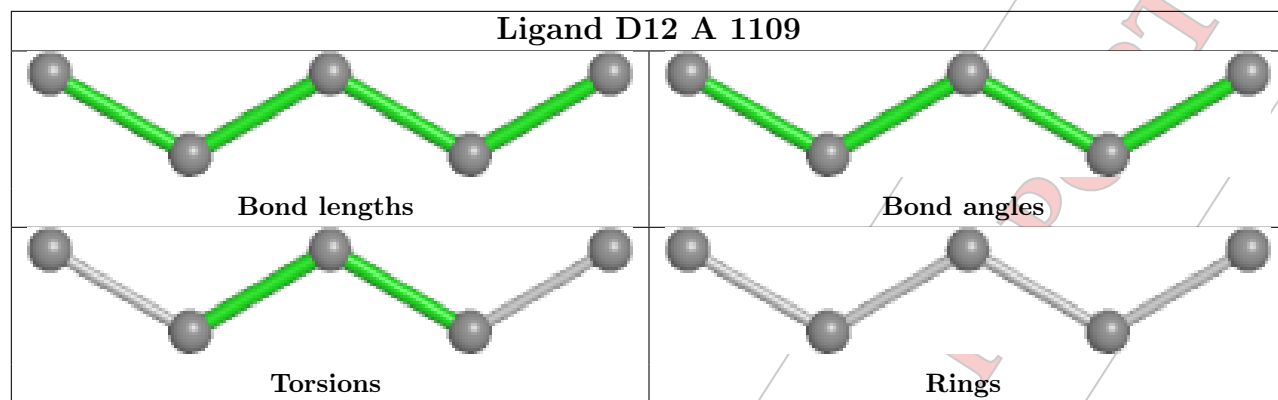
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5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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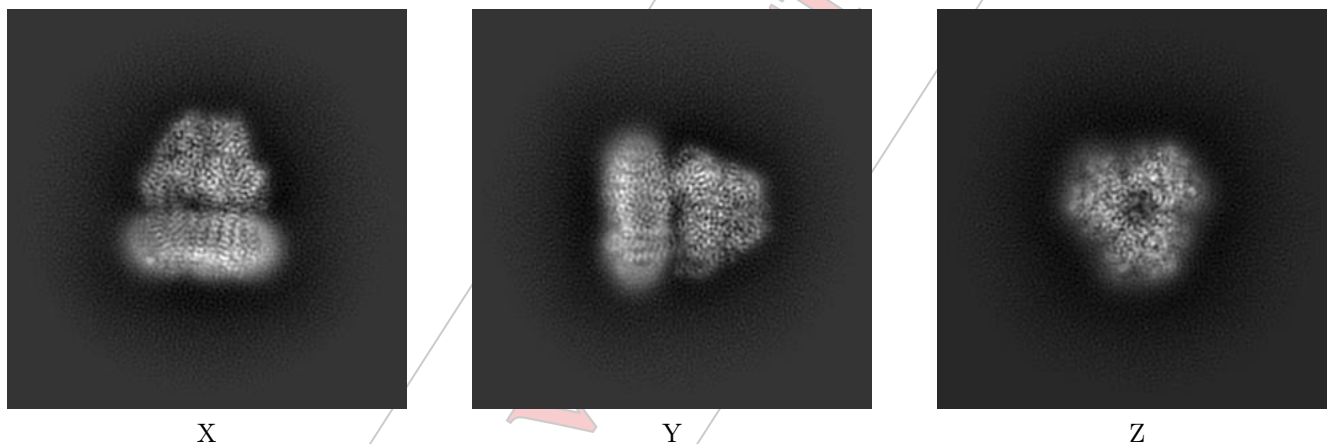
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24654. These allow visual inspection of the internal detail of the map and identification of artifacts.

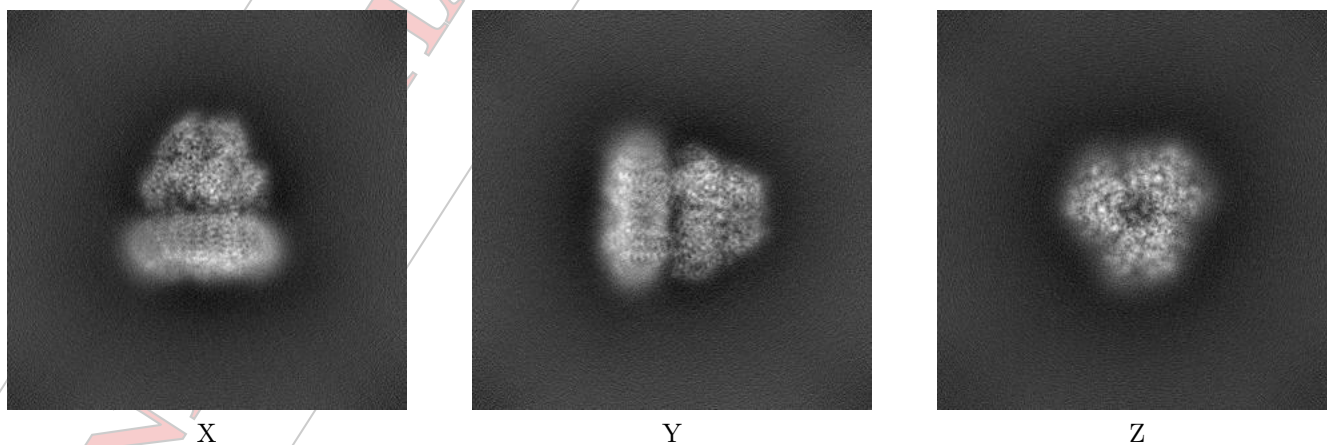
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



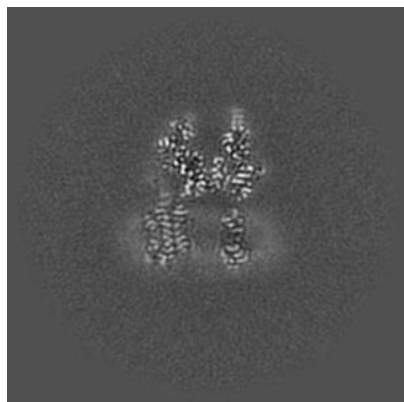
6.1.2 Raw map



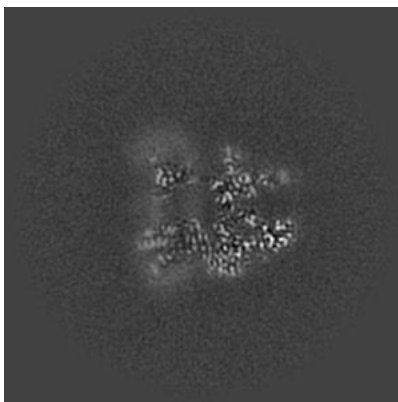
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

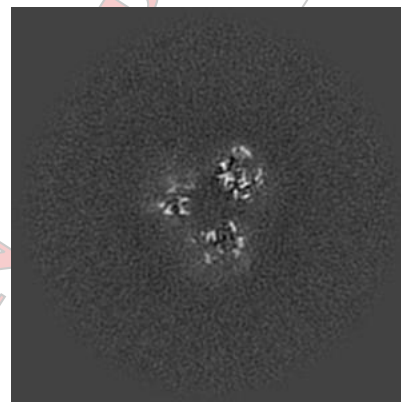
6.2.1 Primary map



X Index: 180

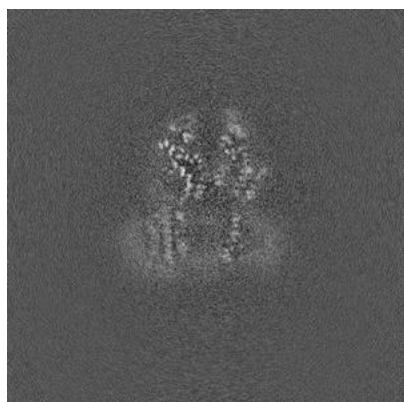


Y Index: 180

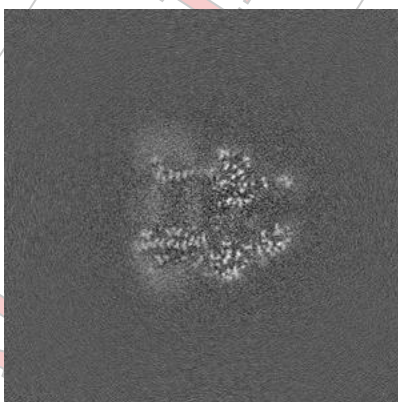


Z Index: 180

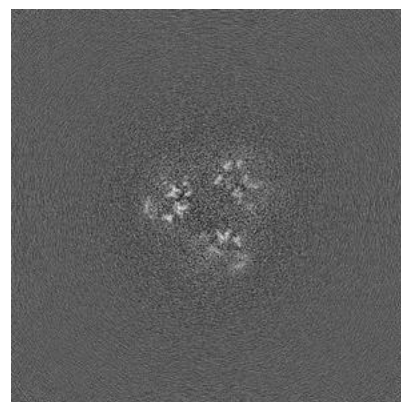
6.2.2 Raw map



X Index: 180



Y Index: 180

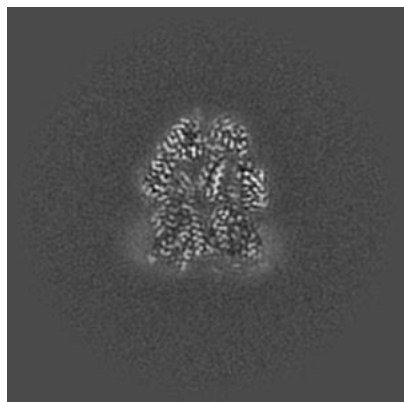


Z Index: 180

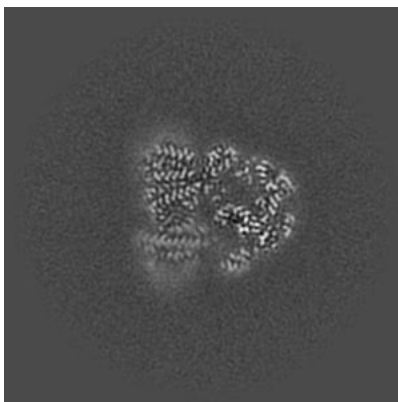
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

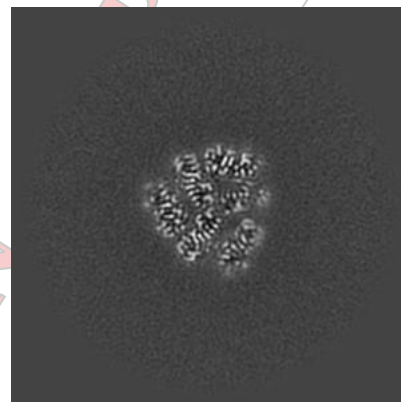
6.3.1 Primary map



X Index: 200

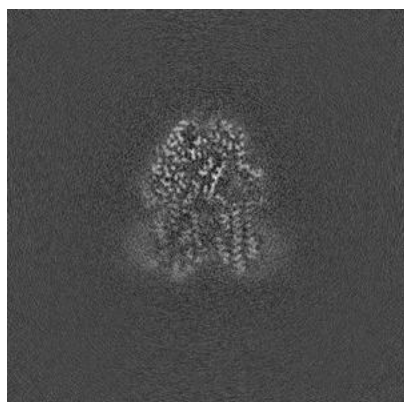


Y Index: 197

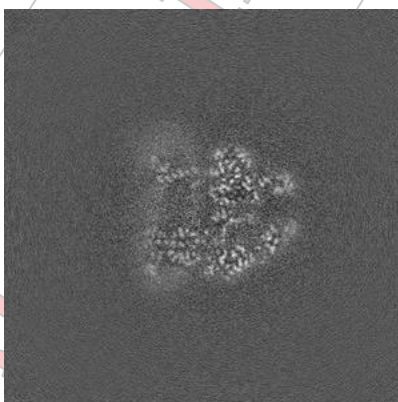


Z Index: 212

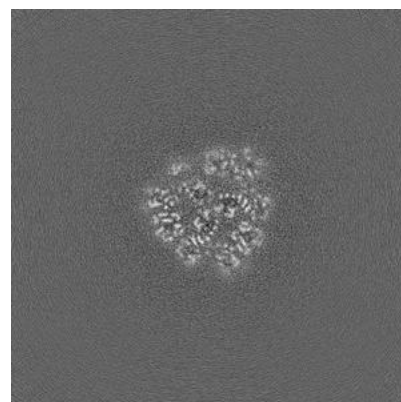
6.3.2 Raw map



X Index: 199



Y Index: 184

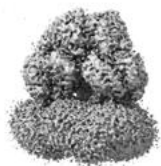


Z Index: 212

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

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



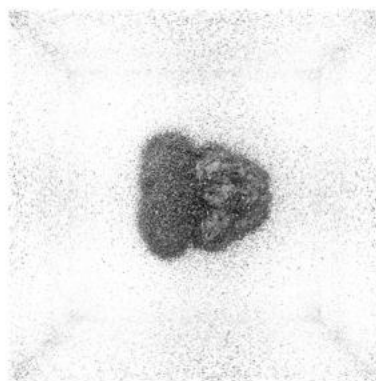
Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

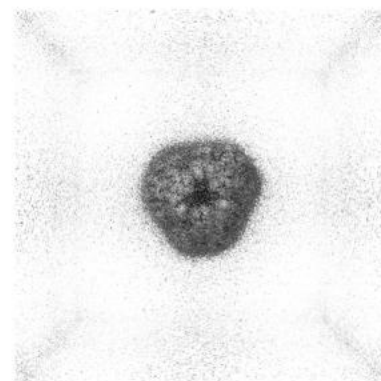
6.4.2 Raw map



X



Y



Z

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

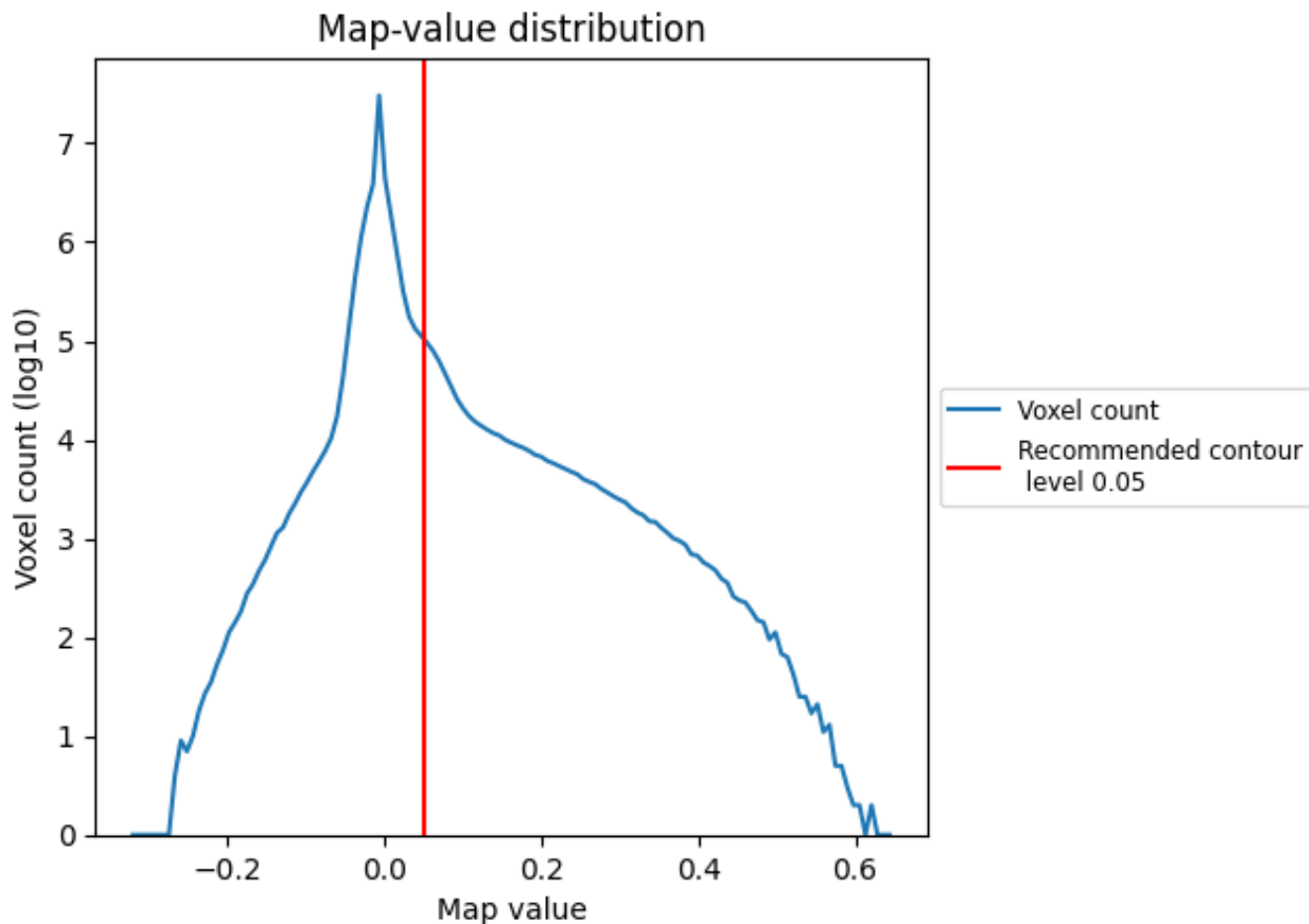
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

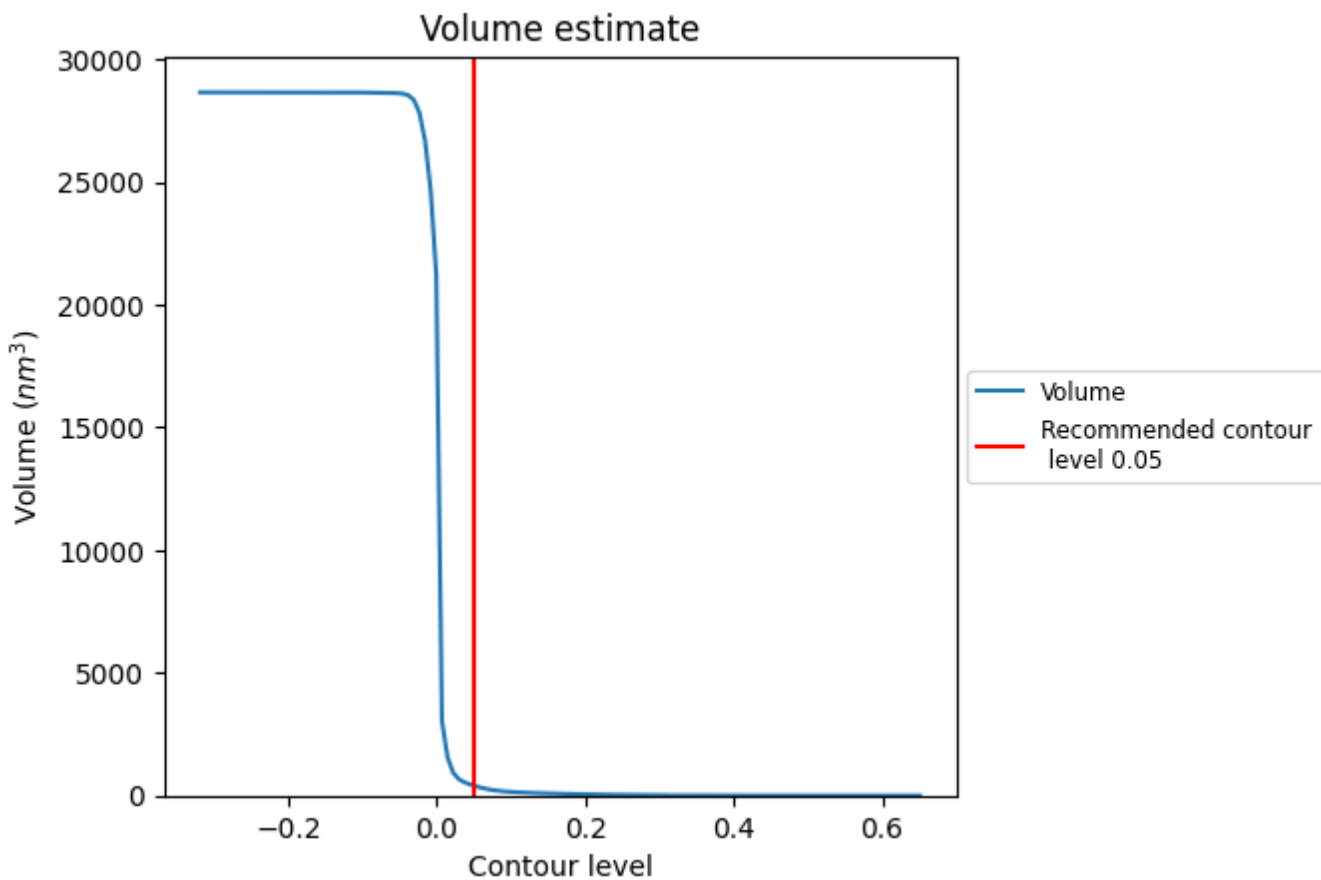
This section contains the results of statistical analysis of the map.

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.

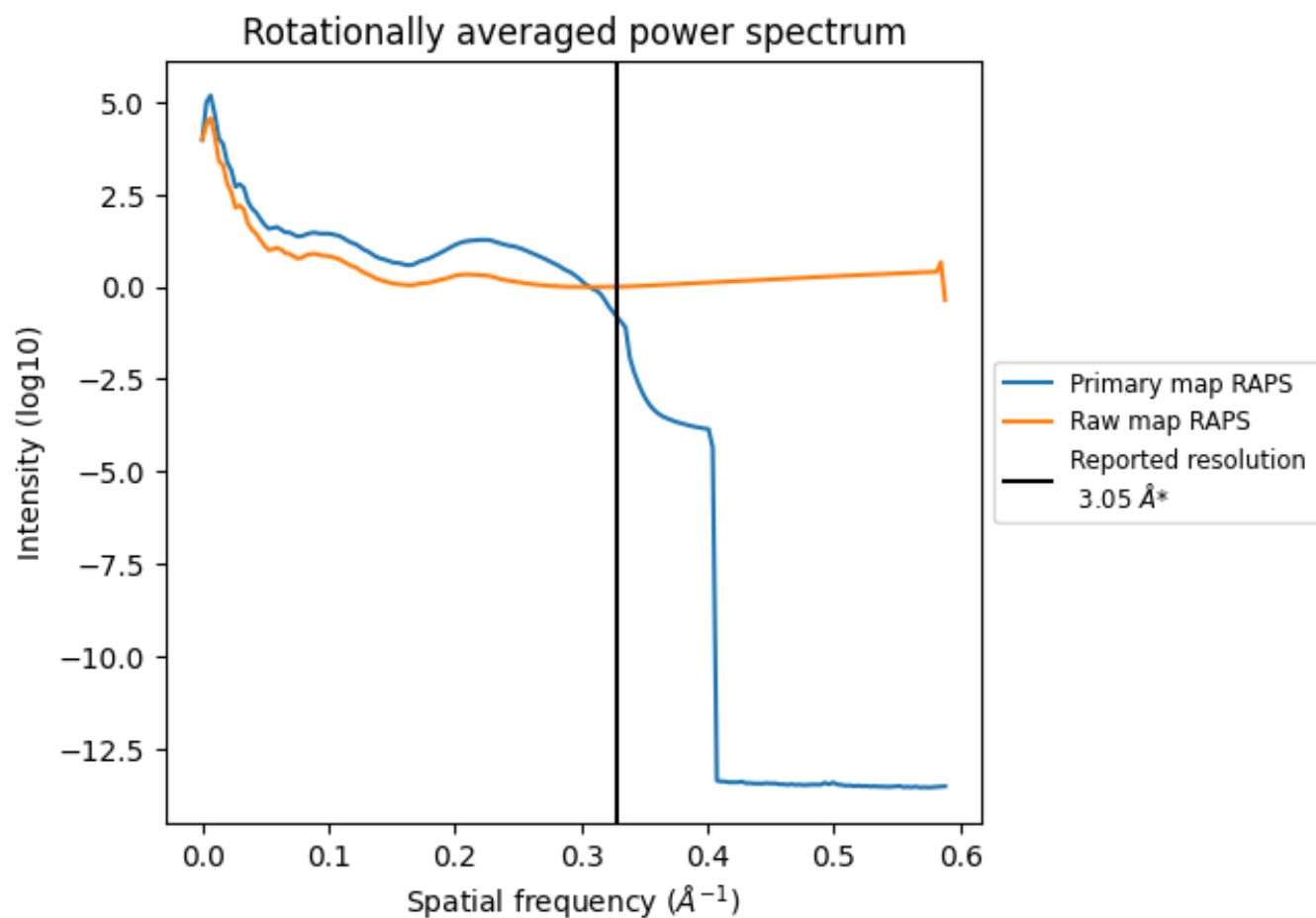
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 402 nm³; this corresponds to an approximate mass of 363 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



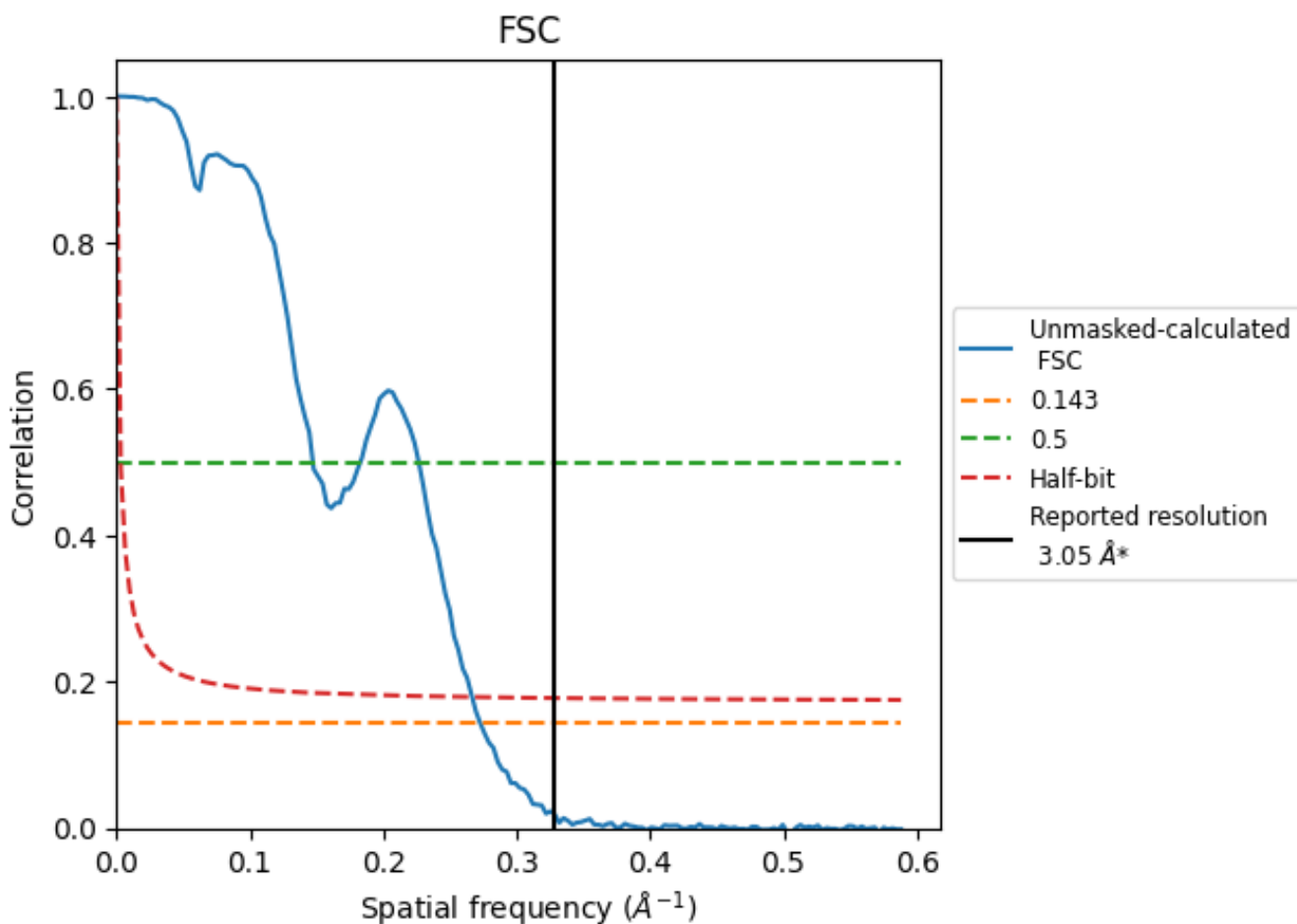
*Reported resolution corresponds to spatial frequency of 0.328 Å⁻¹

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8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.328 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.05	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.67	6.79	3.75

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.67 differs from the reported value 3.05 by more than 10 %

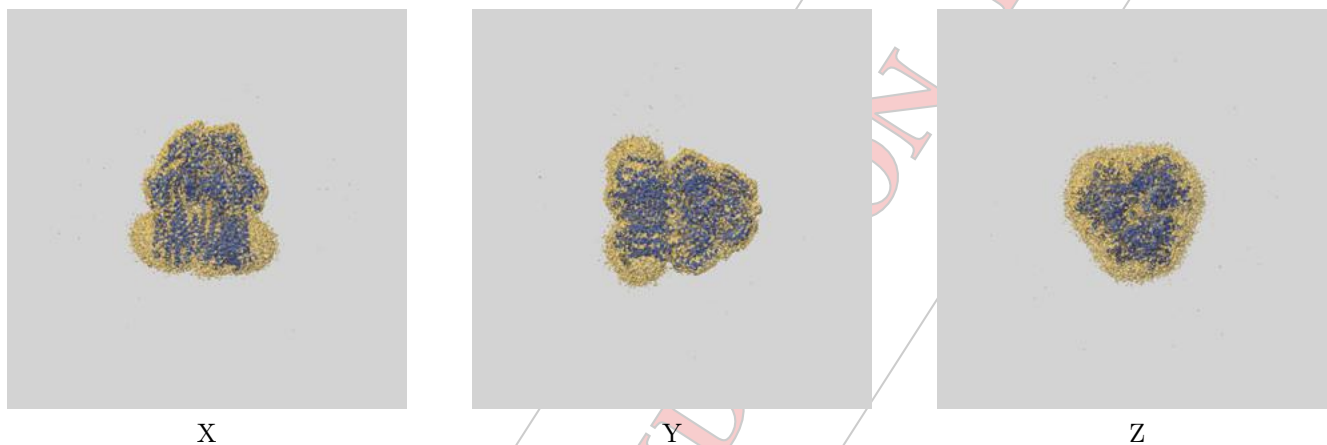
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9 Map-model fit [i](#)

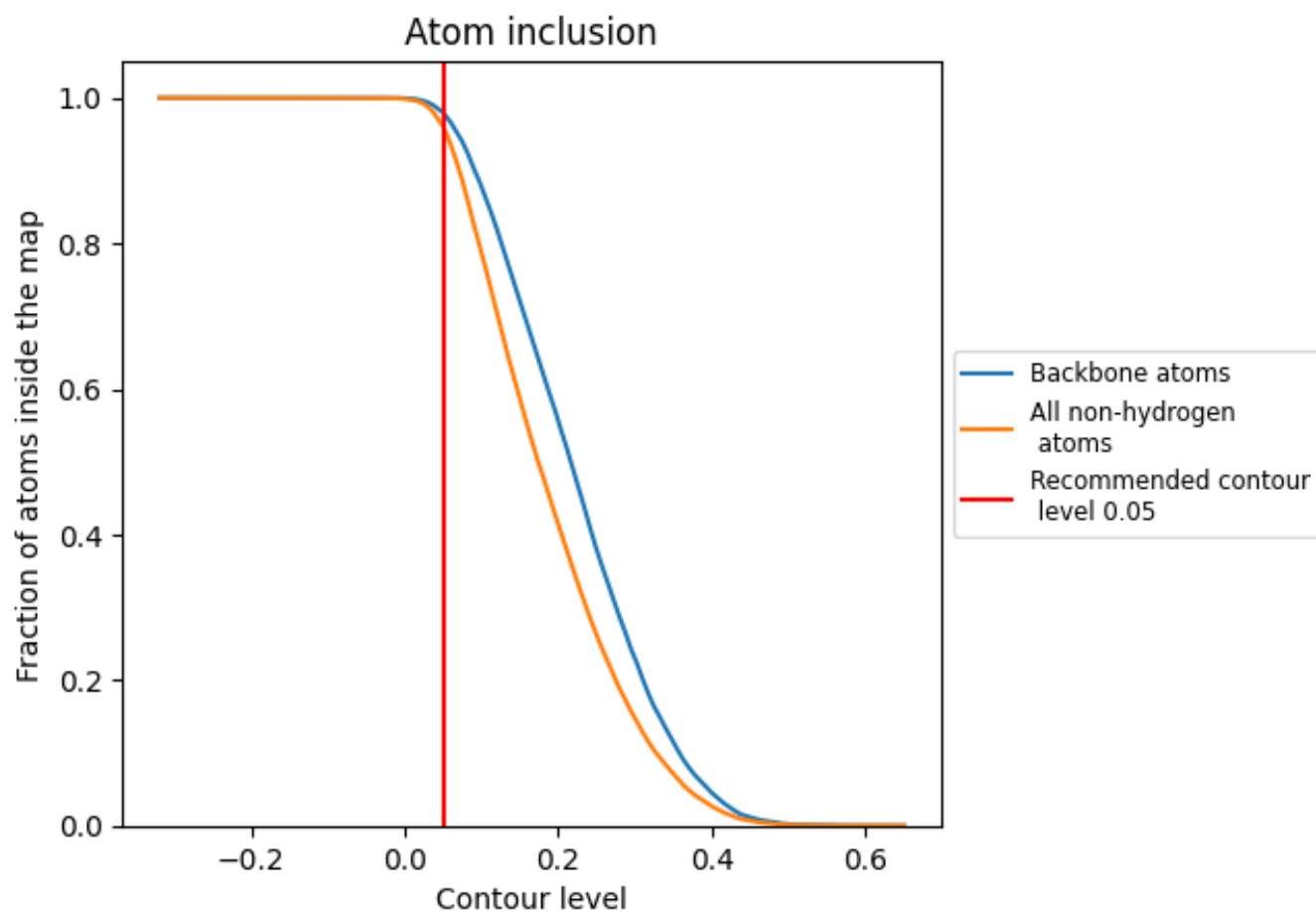
This section contains information regarding the fit between EMDB map EMD-24654 and PDB model 7RR7. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.05 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 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 96% of all non-hydrogen atoms, are inside the map.

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