Full wwPDB EM Validation Report ⓘ

Jun 26, 2023 – 11:19 AM EDT

PDB ID	:	8T1E
EMDB ID	:	EMD-40961
Title	:	Closed-state cryo-EM structure of full-length human TRPV4 in the presence of 4a-PDD
Authors	:	Talyzina, I.A.; Nadezhdin, K.D.; Neuberger, A.; Sobolevsky, A.I.
Deposited on	:	2023-06-02
Resolution	:	2.77 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:

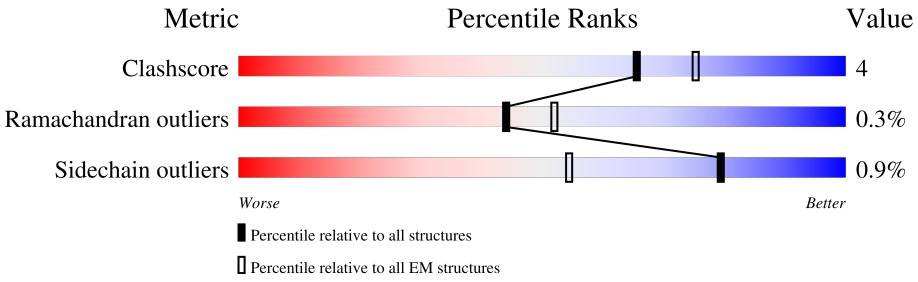
EMDB validation analysis	:	0.0.1.dev50
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.33

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 2.77 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 <=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	1132	12% 48% 7% 44%
1	B	1132	12% 48% 7% 44%
1	C	1132	12% 48% 7% 44%
1	D	1132	12% 48% 7% 44%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 22115 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 Transient receptor potential cation channel subfamily V member 4,Enhanced green fluorescent protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	629	Total	C	N	O	S	0	0
			5061	3296	838	900	27		
1	B	629	Total	C	N	O	S	0	0
			5061	3296	838	900	27		
1	C	629	Total	C	N	O	S	0	0
			5061	3296	838	900	27		
1	D	629	Total	C	N	O	S	0	0
			5061	3296	838	900	27		

There are 96 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	872	LEU	-	linker	UNP Q9HBA0
A	873	VAL	-	linker	UNP Q9HBA0
A	874	PRO	-	linker	UNP Q9HBA0
A	875	ARG	-	linker	UNP Q9HBA0
A	876	GLY	-	linker	UNP Q9HBA0
A	877	SER	-	linker	UNP Q9HBA0
A	878	ALA	-	linker	UNP Q9HBA0
A	879	ALA	-	linker	UNP Q9HBA0
A	880	ALA	-	linker	UNP Q9HBA0
A	881	ALA	-	linker	UNP Q9HBA0
A	1087	LYS	ALA	engineered mutation	UNP C5MKY7
A	1120	SER	-	expression tag	UNP C5MKY7
A	1121	GLY	-	expression tag	UNP C5MKY7
A	1122	LEU	-	expression tag	UNP C5MKY7
A	1123	ARG	-	expression tag	UNP C5MKY7
A	1124	SER	-	expression tag	UNP C5MKY7
A	1125	TRP	-	expression tag	UNP C5MKY7
A	1126	SER	-	expression tag	UNP C5MKY7
A	1127	HIS	-	expression tag	UNP C5MKY7
A	1128	PRO	-	expression tag	UNP C5MKY7
A	1129	GLN	-	expression tag	UNP C5MKY7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1130	PHE	-	expression tag	UNP C5MKY7
A	1131	GLU	-	expression tag	UNP C5MKY7
A	1132	LYS	-	expression tag	UNP C5MKY7
B	872	LEU	-	linker	UNP Q9HBA0
B	873	VAL	-	linker	UNP Q9HBA0
B	874	PRO	-	linker	UNP Q9HBA0
B	875	ARG	-	linker	UNP Q9HBA0
B	876	GLY	-	linker	UNP Q9HBA0
B	877	SER	-	linker	UNP Q9HBA0
B	878	ALA	-	linker	UNP Q9HBA0
B	879	ALA	-	linker	UNP Q9HBA0
B	880	ALA	-	linker	UNP Q9HBA0
B	881	ALA	-	linker	UNP Q9HBA0
B	1087	LYS	ALA	engineered mutation	UNP C5MKY7
B	1120	SER	-	expression tag	UNP C5MKY7
B	1121	GLY	-	expression tag	UNP C5MKY7
B	1122	LEU	-	expression tag	UNP C5MKY7
B	1123	ARG	-	expression tag	UNP C5MKY7
B	1124	SER	-	expression tag	UNP C5MKY7
B	1125	TRP	-	expression tag	UNP C5MKY7
B	1126	SER	-	expression tag	UNP C5MKY7
B	1127	HIS	-	expression tag	UNP C5MKY7
B	1128	PRO	-	expression tag	UNP C5MKY7
B	1129	GLN	-	expression tag	UNP C5MKY7
B	1130	PHE	-	expression tag	UNP C5MKY7
B	1131	GLU	-	expression tag	UNP C5MKY7
B	1132	LYS	-	expression tag	UNP C5MKY7
C	872	LEU	-	linker	UNP Q9HBA0
C	873	VAL	-	linker	UNP Q9HBA0
C	874	PRO	-	linker	UNP Q9HBA0
C	875	ARG	-	linker	UNP Q9HBA0
C	876	GLY	-	linker	UNP Q9HBA0
C	877	SER	-	linker	UNP Q9HBA0
C	878	ALA	-	linker	UNP Q9HBA0
C	879	ALA	-	linker	UNP Q9HBA0
C	880	ALA	-	linker	UNP Q9HBA0
C	881	ALA	-	linker	UNP Q9HBA0
C	1087	LYS	ALA	engineered mutation	UNP C5MKY7
C	1120	SER	-	expression tag	UNP C5MKY7
C	1121	GLY	-	expression tag	UNP C5MKY7
C	1122	LEU	-	expression tag	UNP C5MKY7
C	1123	ARG	-	expression tag	UNP C5MKY7

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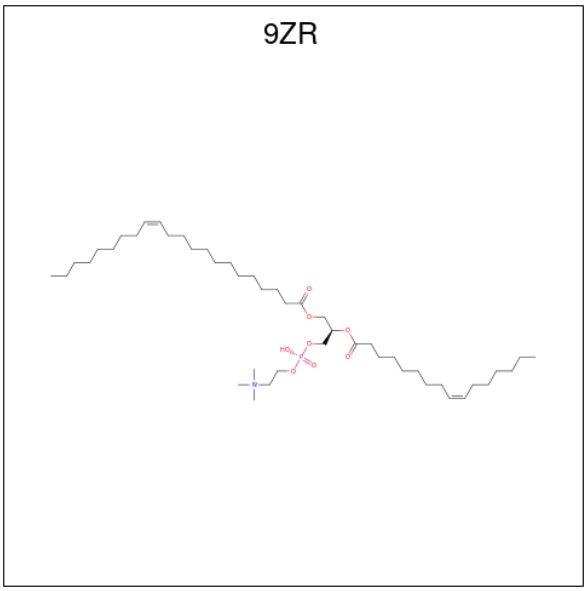
Chain	Residue	Modelled	Actual	Comment	Reference
C	1124	SER	-	expression tag	UNP C5MKY7
C	1125	TRP	-	expression tag	UNP C5MKY7
C	1126	SER	-	expression tag	UNP C5MKY7
C	1127	HIS	-	expression tag	UNP C5MKY7
C	1128	PRO	-	expression tag	UNP C5MKY7
C	1129	GLN	-	expression tag	UNP C5MKY7
C	1130	PHE	-	expression tag	UNP C5MKY7
C	1131	GLU	-	expression tag	UNP C5MKY7
C	1132	LYS	-	expression tag	UNP C5MKY7
D	872	LEU	-	linker	UNP Q9HBA0
D	873	VAL	-	linker	UNP Q9HBA0
D	874	PRO	-	linker	UNP Q9HBA0
D	875	ARG	-	linker	UNP Q9HBA0
D	876	GLY	-	linker	UNP Q9HBA0
D	877	SER	-	linker	UNP Q9HBA0
D	878	ALA	-	linker	UNP Q9HBA0
D	879	ALA	-	linker	UNP Q9HBA0
D	880	ALA	-	linker	UNP Q9HBA0
D	881	ALA	-	linker	UNP Q9HBA0
D	1087	LYS	ALA	engineered mutation	UNP C5MKY7
D	1120	SER	-	expression tag	UNP C5MKY7
D	1121	GLY	-	expression tag	UNP C5MKY7
D	1122	LEU	-	expression tag	UNP C5MKY7
D	1123	ARG	-	expression tag	UNP C5MKY7
D	1124	SER	-	expression tag	UNP C5MKY7
D	1125	TRP	-	expression tag	UNP C5MKY7
D	1126	SER	-	expression tag	UNP C5MKY7
D	1127	HIS	-	expression tag	UNP C5MKY7
D	1128	PRO	-	expression tag	UNP C5MKY7
D	1129	GLN	-	expression tag	UNP C5MKY7
D	1130	PHE	-	expression tag	UNP C5MKY7
D	1131	GLU	-	expression tag	UNP C5MKY7
D	1132	LYS	-	expression tag	UNP C5MKY7

- Molecule 2 is [(2 {R})-2-[({Z})-hexadec-9-enoyl]oxy-3-[oxidanyl-[2-(trimethyl-$l^{4}-azanyl)ethoxy]phosphoryl]oxy-propyl] ({Z})-docos-13-enoate (three-letter code: 9ZR) (formula: $C_{46}H_{89}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	A	1	Total	C	N	O	P	0
			44	34	1	8	1	
2	A	1	Total	C				0
			13	13				
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	A	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	B	1	Total	C	N	O	P	0
			44	34	1	8	1	
2	B	1	Total	C				0
			13	13				
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	

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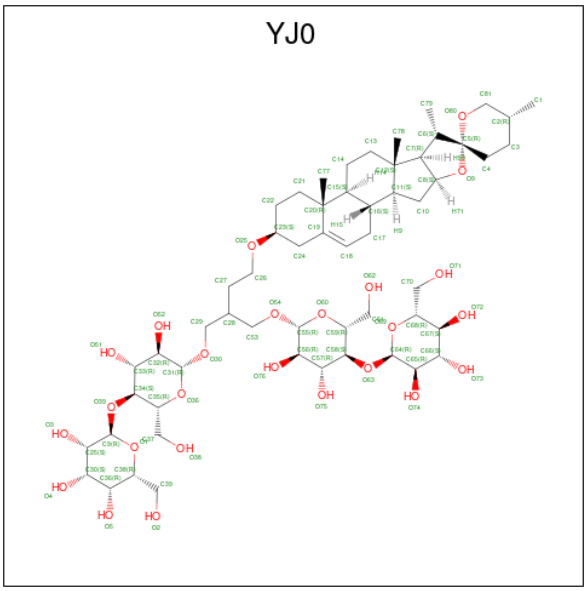
Mol	Chain	Residues	Atoms					AltConf
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	B	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			44	34	1	8	1	
2	C	1	Total	C				0
			13	13				
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	C	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			44	34	1	8	1	
2	D	1	Total	C				0
			13	13				
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	
2	D	1	Total	C	N	O	P	0
			56	46	1	8	1	

- Molecule 3 is (2R)-2-{[(4-O-hexopyranosyl-beta-D-glucopyranosyl)oxy]methyl}-4-{[(25R)-5beta,14beta,17beta-spirostan-3beta-yl]oxy}butyl 4-O-alpha-D-glucopyranosyl-beta-D-glucopyranoside (three-letter code: YJ0) (formula: $C_{56}H_{92}O_{25}$).



Mol	Chain	Residues	Atoms	AltConf
3	A	1	Total C O 35 32 3	0
3	A	1	Total C O 30 27 3	0
3	B	1	Total C O 30 27 3	0
3	B	1	Total C O 35 32 3	0
3	C	1	Total C O 30 27 3	0
3	C	1	Total C O 35 32 3	0
3	D	1	Total C O 30 27 3	0
3	D	1	Total C O 35 32 3	0

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	AltConf
4	A	3	Total Na 3 3	0

- Molecule 5 is water.

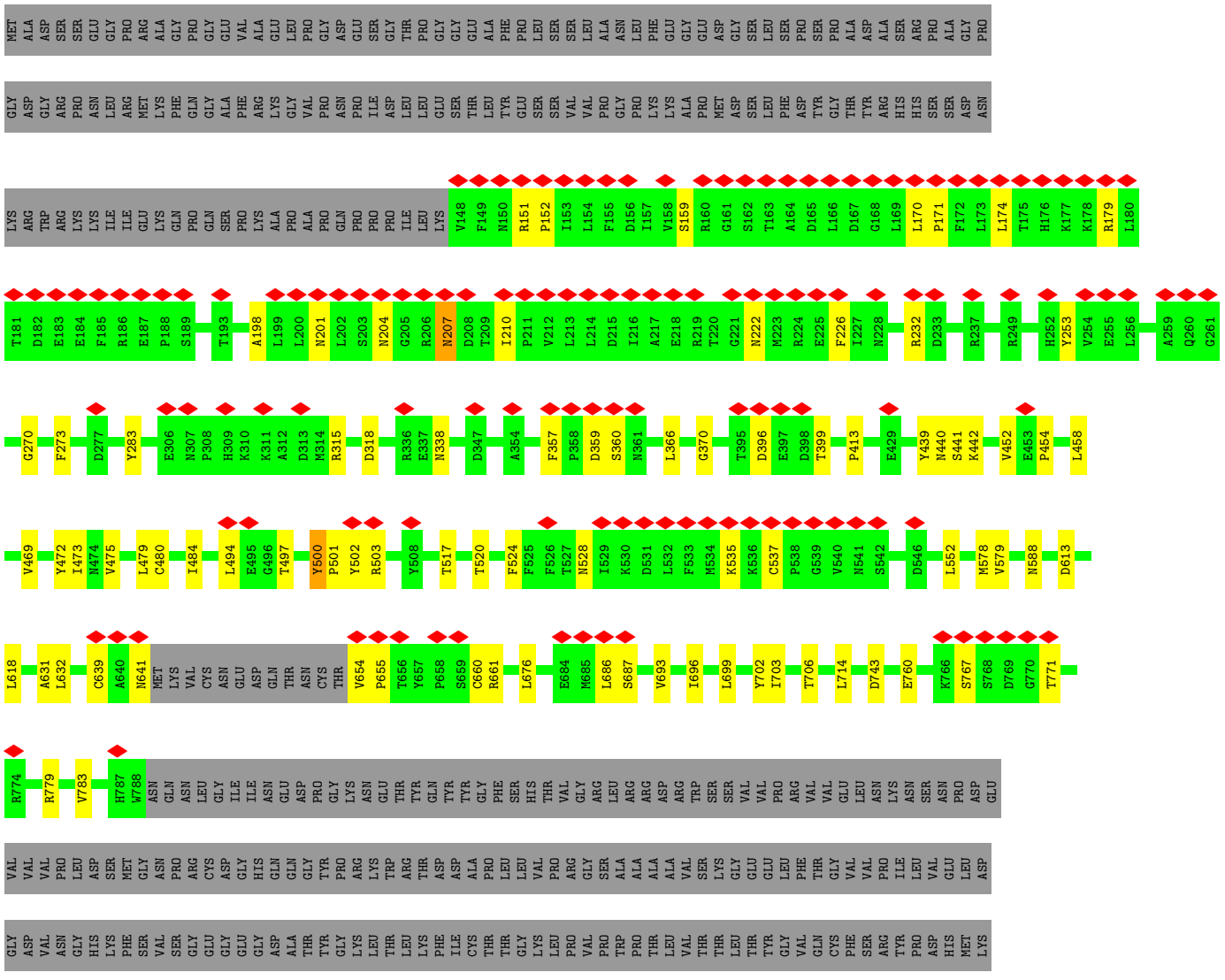
Mol	Chain	Residues	Atoms	AltConf
5	A	9	Total O 9 9	0
5	B	9	Total O 9 9	0
5	C	9	Total O 9 9	0
5	D	9	Total O 9 9	0

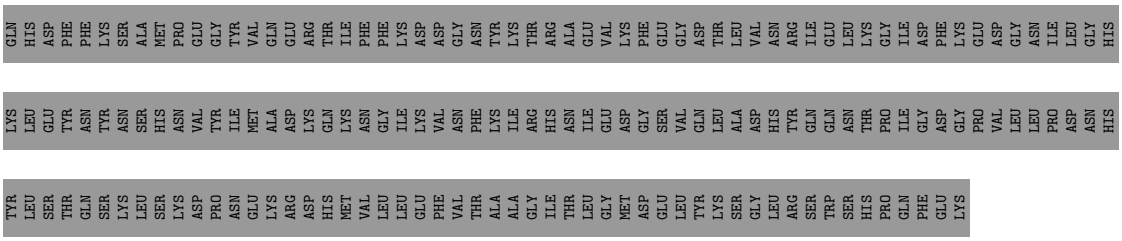
3 Residue-property plots (i)

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: Transient receptor potential cation channel subfamily V member 4,Enhanced green fluorescent protein

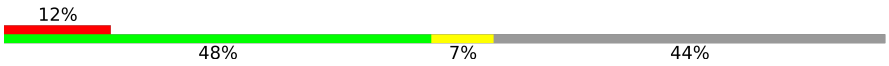
Chain A:

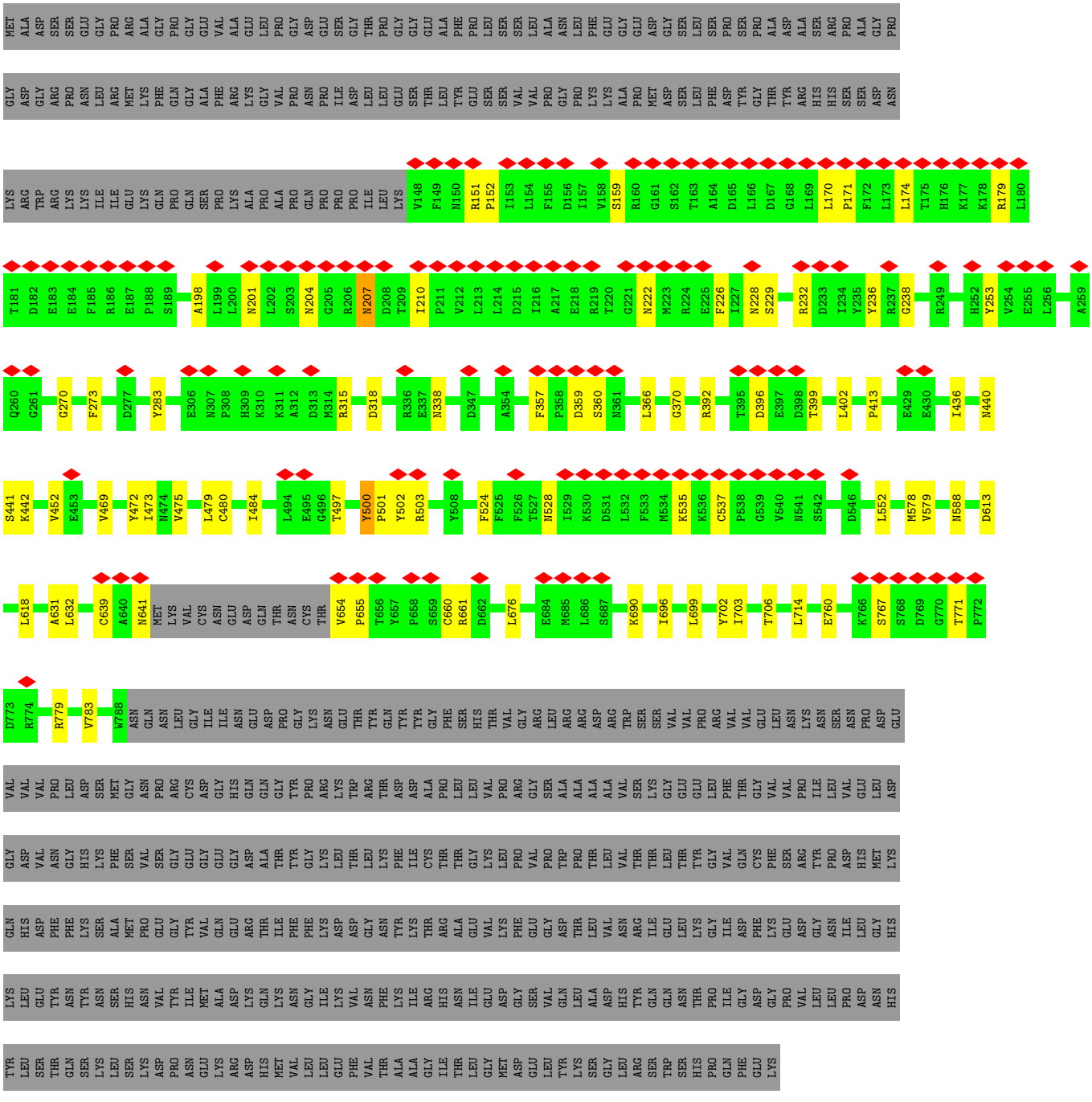




• Molecule 1: Transient receptor potential cation channel subfamily V member 4,Enhanced green fluorescent protein

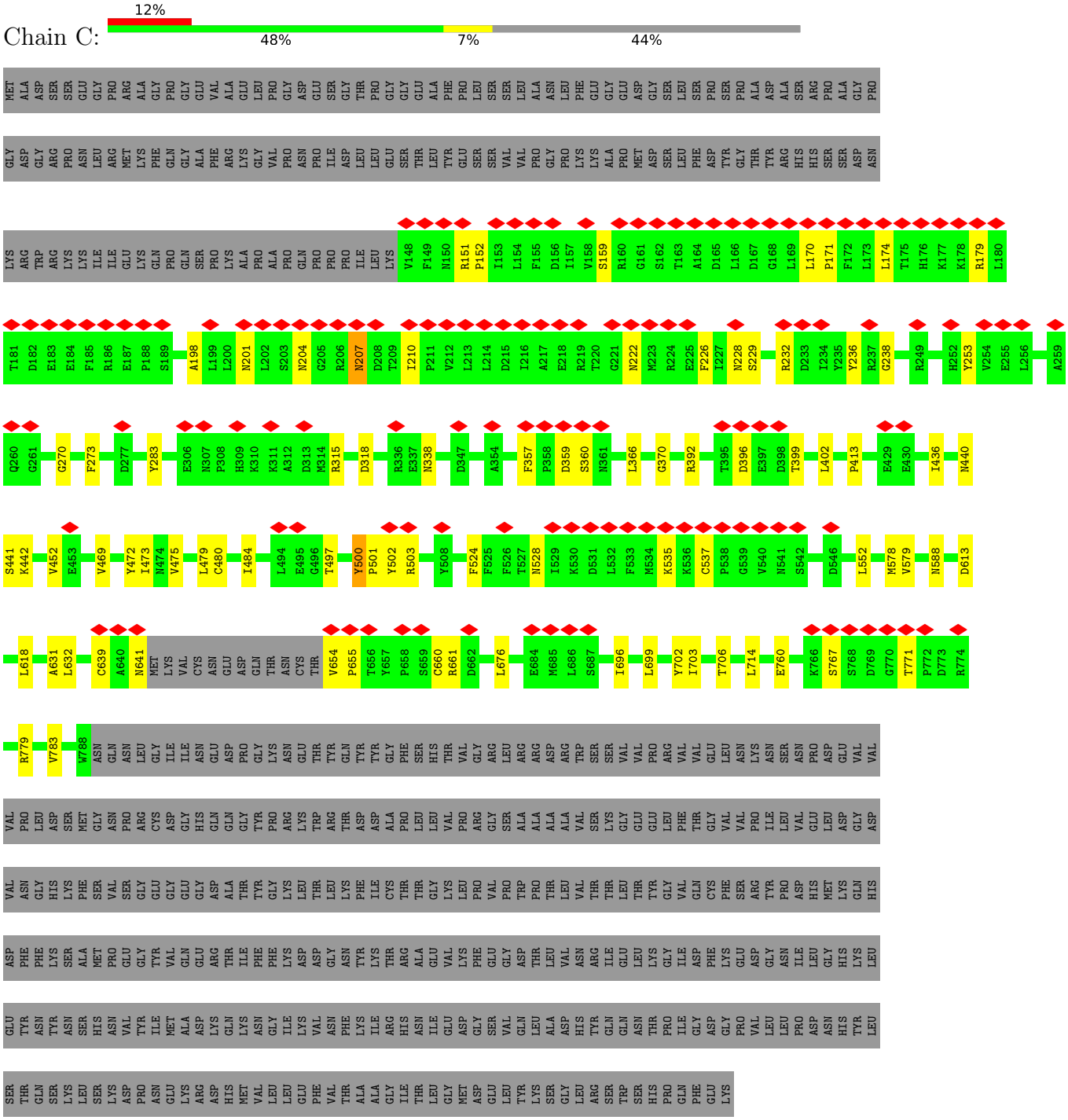
Chain B:





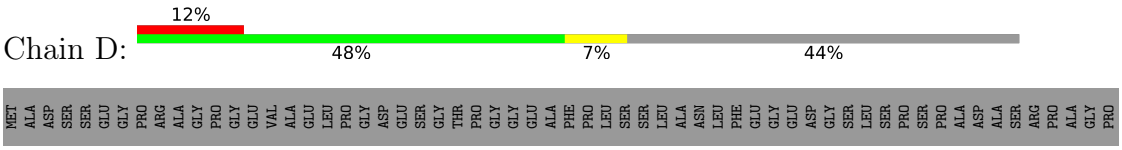
• Molecule 1: Transient receptor potential cation channel subfamily V member 4,Enhanced green fluorescent protein

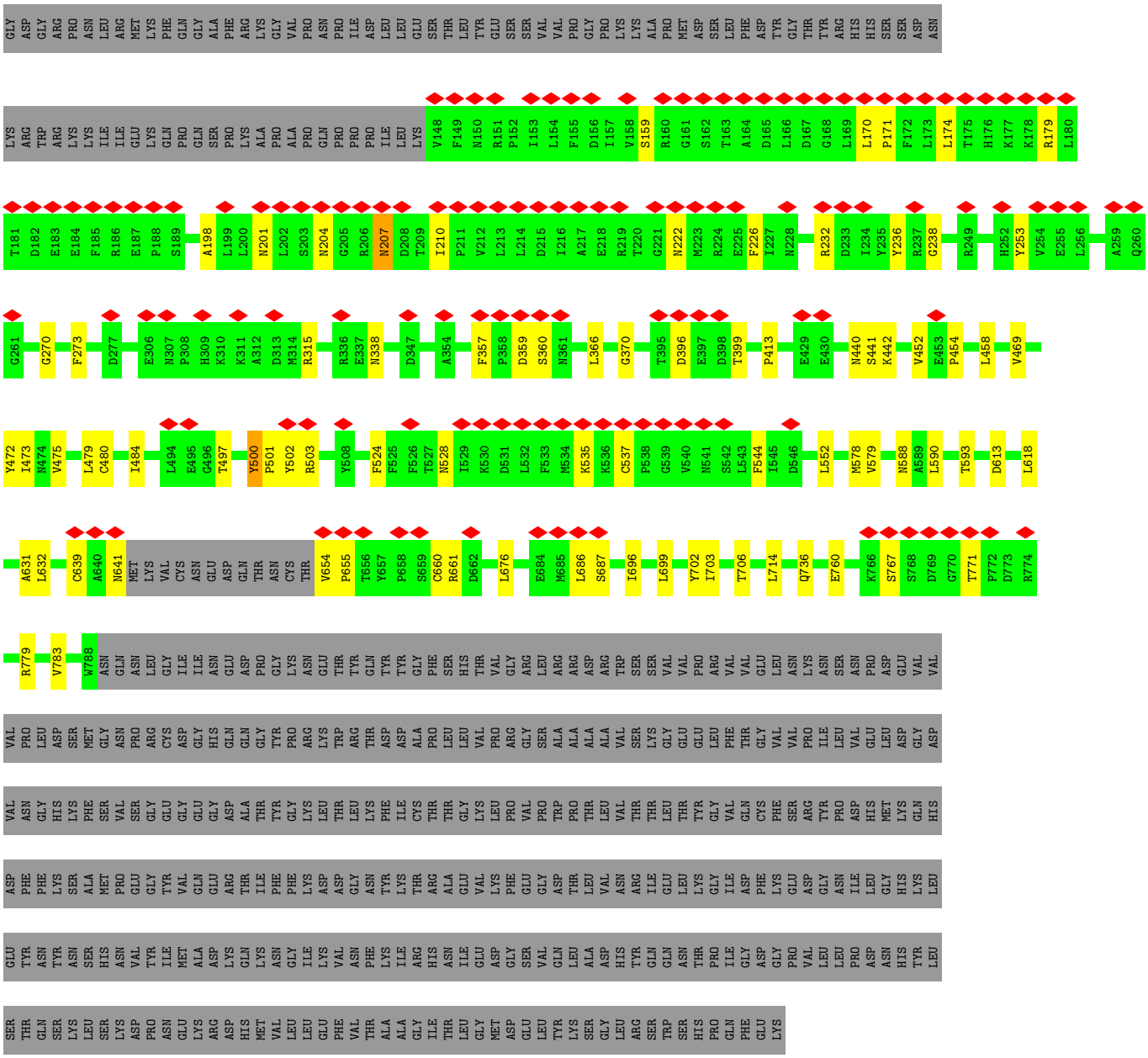
Chain C:



• Molecule 1: Transient receptor potential cation channel subfamily V member 4,Enhanced green fluorescent protein

Chain D:




GLY ASP GLY ARG PRO ASN LEU ARG MET LYS PHE GLN GLY ALA PHE ARG LYS GLY VAL PRO ASN PRO ILE ASP LEU LEU GLU SER THR LEU TYR GLU SER SER VAL VAL PRO GLY PRO LYS LYS ALA PRO MET ASP SER LEU PHE ASP TYR GLY THR TYR ARG HIS HIS SER SER ASP ASN
LYS ARG TRP ARG LYS LYS ILE ILE GLU LYS GLN PRO GLN SER PRO LYS ALA PRO ALA PRO GLN PRO PRO PRO ILE LEU LYS V148 F149 N150 R151 P152 I153 L154 F155 D156 I157 V158 S159 R160 G161 S162 T163 A164 D165 L166 D167 G168 L169 L170 P171 F172 L173 L174 T175 H176 K177 K178 R179 L180
T181 D182 E183 E184 F185 R186 E187 P188 S189 A198 L199 L200 N201 L202 S203 N204 G205 R206 N207 D208 T209 I210 P211 V212 L213 L214 D215 I216 A217 E218 R219 T220 G221 N222 M223 R224 E225 F226 I227 N228 R232 D233 I234 Y235 Y236 R237 G238 R249 H252 Y253 V254 E255 L256 A259 Q260
G261 G270 F273 D277 E306 N307 P308 H309 K310 K311 A312 D313 M314 R315 R336 E337 N338 D347 A354 F357 P358 D359 S360 N361 L366 G370 T395 D396 E397 D398 T399 P413 E429 E430 N440 S441 K442 V452 E453 P454 L458 V469
Y472 I473 N474 V475 L479 C480 I484 L494 E495 G496 T497 Y500 P501 Y502 R503 Y508 F524 F525 F526 T527 N528 I529 K530 D531 L532 F533 M534 K535 K536 C537 P538 G539 V540 N541 S542 L543 F544 I545 D546 L552 M578 V579 N588 A589 L590 T593 D613 L618
A631 L632 C639 A640 N641 MET LYS VAL CYS ASN GLU ASP GLN THR ASN CYS THR V654 P655 T656 Y657 P658 S659 C660 R661 D662 L676 E684 M685 L686 S687 I696 L699 Y702 I703 T706 L714 Q736 E760 K766 S767 S768 D769 G770 T771 P772 D773 R774
R779 V783 W788 ASN GLN ASN LEU GLY ILE ILE ASN GLU ASP PRO GLY LYS ASN GLU THR TYR GLN TYR TYR GLY PHE SER HIS THR VAL GLY ARG LEU ARG ARG ASP ARG TRP SER SER VAL VAL PRO ARG VAL VAL GLU LEU ASN LYS ASN SER ASN PRO ASP GLU VAL VAL
VAL PRO LEU ASP SER MET GLY ASN PRO ARG CYS ASP GLY HIS GLN GLN GLY TYR PRO ARG LYS TRP ARG THR ASP ASP ALA PRO LEU LEU VAL PRO ARG GLY GLY SER ALA ALA ALA ALA VAL SER LYS GLY GLU LEU PHE THR GLY VAL VAL PRO ILE LEU VAL GLU ASP GLY
VAL ASN GLY HIS LYS PHE SER VAL SER GLY GLU GLY GLU GLY ASP ALA THR TYR GLY LYS LEU THR LEU LYS PHE ILE CYS THR THR GLY LYS LEU PRO VAL PRO TRP PRO THR LEU VAL THR THR LEU THR TYR GLY VAL GLN CYS PHE SER ARG TYR PRO ASP HIS MET LYS GLN HIS
ASP PHE PHE LYS SER ALA MET PRO GLU GLY TYR VAL GLN GLU ARG THR ILE PHE PHE LYS ASP ASP GLY ASN TYR LYS THR ARG ALA GLU VAL LYS PHE GLU GLY ASP THR LEU VAL ASN ARG ILE GLU LEU LYS GLY ILE ASP PHE LYS GLU ASP GLY ASN ILE LEU GLY LEU
GLU TYR ASN TYR ASN SER HIS ASN VAL TYR ILE MET ALA ASP LYS GLN LYS ASN GLY ILE LYS VAL ASN PHE LYS ILE ARG HIS ASN ILE GLU ASP GLY SER VAL GLN LEU ALA ASP HIS TYR GLN GLN ASN THR PRO ILE GLY ASP GLY PRO VAL LEU LEU LEU PRO ASP ASN HIS TYR LEU
SER THR GLN SER LYS LEU SER LYS ASP PRO ASN GLU LYS ARG ASP HIS MET VAL LEU LEU GLU PHE VAL THR ALA ALA GLY ILE THR LEU GLY MET ASP GLU LEU TYR LYS SER GLY LEU ARG SER TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	75146	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	750	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.497	Depositor
Minimum map value	-0.329	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.015	Depositor
Recommended contour level	0.065	Depositor
Map size (Å)	252.416, 252.416, 252.416	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.7888, 0.7888, 0.7888	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: YJ0, 9ZR, NA

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	0/5181	0.66	2/7027 (0.0%)
1	B	0.46	0/5181	0.66	2/7027 (0.0%)
1	C	0.46	0/5181	0.66	2/7027 (0.0%)
1	D	0.45	0/5181	0.66	2/7027 (0.0%)
All	All	0.46	0/20724	0.66	8/28108 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	4
1	B	0	4
1	C	0	4
1	D	0	4
All	All	0	16

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	179	ARG	NE-CZ-NH1	6.10	123.35	120.30
1	C	179	ARG	NE-CZ-NH1	6.08	123.34	120.30
1	D	179	ARG	NE-CZ-NH1	6.06	123.33	120.30
1	A	179	ARG	NE-CZ-NH1	6.05	123.32	120.30
1	B	714	LEU	CA-CB-CG	5.58	128.13	115.30
1	A	714	LEU	CA-CB-CG	5.57	128.12	115.30
1	C	714	LEU	CA-CB-CG	5.57	128.10	115.30
1	D	714	LEU	CA-CB-CG	5.55	128.07	115.30

There are no chirality outliers.

All (16) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	452	VAL	Peptide
1	A	497	THR	Peptide
1	A	500	TYR	Peptide
1	A	537	CYS	Peptide
1	B	452	VAL	Peptide
1	B	497	THR	Peptide
1	B	500	TYR	Peptide
1	B	537	CYS	Peptide
1	C	452	VAL	Peptide
1	C	497	THR	Peptide
1	C	500	TYR	Peptide
1	C	537	CYS	Peptide
1	D	452	VAL	Peptide
1	D	497	THR	Peptide
1	D	500	TYR	Peptide
1	D	537	CYS	Peptide

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	5061	0	5128	45	0
1	B	5061	0	5128	44	0
1	C	5061	0	5128	43	0
1	D	5061	0	5128	42	0
2	A	393	0	0	0	0
2	B	393	0	0	0	0
2	C	393	0	0	0	0
2	D	393	0	0	0	0
3	A	65	0	0	4	0
3	B	65	0	0	3	0
3	C	65	0	0	3	0
3	D	65	0	0	3	0
4	A	3	0	0	0	0
5	A	9	0	0	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	B	9	0	0	4	0
5	C	9	0	0	4	0
5	D	9	0	0	4	0
All	All	22115	0	20512	173	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (173) 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:660:CYS:SG	1:A:661:ARG:N	2.56	0.79
1:C:660:CYS:SG	1:C:661:ARG:N	2.56	0.78
1:B:660:CYS:SG	1:B:661:ARG:N	2.56	0.78
1:D:660:CYS:SG	1:D:661:ARG:N	2.56	0.77
1:B:315:ARG:NH2	5:B:1302:HOH:O	2.19	0.75
1:A:315:ARG:NH2	5:A:1302:HOH:O	2.19	0.75
1:D:315:ARG:NH2	5:D:1302:HOH:O	2.19	0.75
1:C:315:ARG:NH2	5:C:1302:HOH:O	2.19	0.74
1:C:222:ASN:O	1:C:226:PHE:N	2.21	0.73
1:A:222:ASN:O	1:A:226:PHE:N	2.21	0.73
1:B:222:ASN:O	1:B:226:PHE:N	2.21	0.73
1:B:360:SER:O	5:B:1302:HOH:O	2.07	0.73
1:A:360:SER:O	5:A:1302:HOH:O	2.07	0.73
1:D:613:ASP:O	5:D:1301:HOH:O	2.06	0.73
1:D:222:ASN:O	1:D:226:PHE:N	2.21	0.72
1:A:613:ASP:O	5:A:1301:HOH:O	2.07	0.72
1:C:613:ASP:O	5:C:1301:HOH:O	2.06	0.71
1:B:613:ASP:O	5:B:1301:HOH:O	2.06	0.71
1:D:360:SER:O	5:D:1302:HOH:O	2.07	0.71
1:A:578:MET:SD	5:A:1307:HOH:O	2.49	0.70
1:B:578:MET:SD	5:B:1307:HOH:O	2.50	0.70
1:B:760:GLU:OE2	1:B:779:ARG:NH1	2.25	0.70
1:C:360:SER:O	5:C:1302:HOH:O	2.07	0.70
1:D:760:GLU:OE2	1:D:779:ARG:NH1	2.25	0.70
1:A:760:GLU:OE2	1:A:779:ARG:NH1	2.25	0.69
1:C:760:GLU:OE2	1:C:779:ARG:NH1	2.25	0.69
1:D:578:MET:SD	5:D:1307:HOH:O	2.50	0.69
1:D:702:TYR:O	1:D:706:THR:OG1	2.07	0.69
1:C:578:MET:SD	5:C:1307:HOH:O	2.50	0.69
1:B:702:TYR:O	1:B:706:THR:OG1	2.07	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:579:VAL:HG13	1:C:631:ALA:HB1	1.78	0.65
1:A:702:TYR:O	1:A:706:THR:OG1	2.07	0.65
1:C:579:VAL:HG13	1:D:631:ALA:HB1	1.78	0.64
1:A:631:ALA:HB1	1:D:579:VAL:HG13	1.79	0.63
1:C:702:TYR:O	1:C:706:THR:OG1	2.07	0.62
1:A:170:LEU:HB3	1:A:171:PRO:HD3	1.83	0.61
1:D:170:LEU:HB3	1:D:171:PRO:HD3	1.83	0.61
1:C:170:LEU:HB3	1:C:171:PRO:HD3	1.83	0.60
1:B:170:LEU:HB3	1:B:171:PRO:HD3	1.82	0.60
1:A:579:VAL:HG13	1:B:631:ALA:HB1	1.84	0.59
1:C:440:ASN:OD1	1:C:535:LYS:NZ	2.36	0.59
1:B:440:ASN:OD1	1:B:535:LYS:NZ	2.36	0.58
1:A:207:ASN:O	1:A:253:TYR:OH	2.21	0.58
1:A:440:ASN:OD1	1:A:535:LYS:NZ	2.36	0.58
1:C:207:ASN:O	1:C:253:TYR:OH	2.21	0.58
1:D:440:ASN:OD1	1:D:535:LYS:NZ	2.36	0.58
1:D:357:PHE:O	1:D:359:ASP:N	2.38	0.57
1:B:357:PHE:O	1:B:359:ASP:N	2.38	0.57
1:D:207:ASN:O	1:D:253:TYR:OH	2.21	0.56
1:C:357:PHE:O	1:C:359:ASP:N	2.38	0.56
1:A:357:PHE:O	1:A:359:ASP:N	2.38	0.56
1:D:396:ASP:OD1	1:D:399:THR:OG1	2.23	0.56
1:A:396:ASP:OD1	1:A:399:THR:OG1	2.23	0.56
1:B:396:ASP:OD1	1:B:399:THR:OG1	2.23	0.56
1:B:207:ASN:O	1:B:253:TYR:OH	2.21	0.56
1:D:270:GLY:O	1:D:273:PHE:N	2.39	0.55
1:A:494:LEU:O	1:B:690:LYS:NZ	2.33	0.55
1:B:159:SER:O	1:B:201:ASN:ND2	2.40	0.55
1:B:270:GLY:O	1:B:273:PHE:N	2.39	0.55
1:C:270:GLY:O	1:C:273:PHE:N	2.39	0.55
1:A:270:GLY:O	1:A:273:PHE:N	2.39	0.54
1:D:159:SER:O	1:D:201:ASN:ND2	2.40	0.54
1:C:159:SER:O	1:C:201:ASN:ND2	2.40	0.54
1:D:413:PRO:O	1:D:783:VAL:HG13	2.08	0.54
1:A:159:SER:O	1:A:201:ASN:ND2	2.40	0.54
1:A:413:PRO:O	1:A:783:VAL:HG13	2.08	0.54
1:B:413:PRO:O	1:B:783:VAL:HG13	2.08	0.53
1:C:396:ASP:OD1	1:C:399:THR:OG1	2.23	0.53
1:C:413:PRO:O	1:C:783:VAL:HG13	2.08	0.53
1:D:159:SER:OG	1:D:201:ASN:ND2	2.43	0.51
1:A:441:SER:OG	1:A:442:LYS:N	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:441:SER:OG	1:B:442:LYS:N	2.45	0.50
1:C:472:TYR:HA	1:C:475:VAL:HG12	1.93	0.50
1:D:441:SER:OG	1:D:442:LYS:N	2.45	0.50
1:C:159:SER:OG	1:C:201:ASN:ND2	2.43	0.50
1:D:472:TYR:HA	1:D:475:VAL:HG12	1.93	0.50
1:B:472:TYR:HA	1:B:475:VAL:HG12	1.93	0.50
1:A:472:TYR:HA	1:A:475:VAL:HG12	1.93	0.49
1:B:159:SER:OG	1:B:201:ASN:ND2	2.43	0.49
1:C:441:SER:OG	1:C:442:LYS:N	2.44	0.49
1:A:159:SER:OG	1:A:201:ASN:ND2	2.43	0.49
1:C:500:TYR:O	1:C:502:TYR:N	2.47	0.48
1:A:500:TYR:O	1:A:502:TYR:N	2.47	0.48
1:C:283:TYR:OH	1:C:318:ASP:OD2	2.25	0.48
1:B:500:TYR:O	1:B:502:TYR:N	2.47	0.48
1:D:500:TYR:O	1:D:502:TYR:N	2.46	0.48
1:D:639:CYS:N	1:D:660:CYS:SG	2.87	0.48
1:C:475:VAL:HG22	1:C:479:LEU:HD23	1.96	0.48
1:A:639:CYS:N	1:A:660:CYS:SG	2.87	0.48
1:B:639:CYS:N	1:B:660:CYS:SG	2.87	0.48
1:A:696:ILE:HG21	3:A:1210:YJ0:C18	2.44	0.48
1:B:475:VAL:HG22	1:B:479:LEU:HD23	1.96	0.47
1:B:198:ALA:HB1	1:B:210:ILE:HD11	1.96	0.47
1:C:198:ALA:HB1	1:C:210:ILE:HD11	1.96	0.47
1:C:639:CYS:N	1:C:660:CYS:SG	2.87	0.47
3:B:1209:YJ0:C81	3:B:1209:YJ0:C79	2.93	0.47
1:C:170:LEU:O	1:C:174:LEU:HD23	2.14	0.47
1:D:475:VAL:HG22	1:D:479:LEU:HD23	1.96	0.47
1:A:475:VAL:HG22	1:A:479:LEU:HD23	1.96	0.47
1:A:693:VAL:HG22	3:A:1210:YJ0:C23	2.44	0.47
1:D:170:LEU:O	1:D:174:LEU:HD23	2.14	0.47
1:A:198:ALA:HB1	1:A:210:ILE:HD11	1.96	0.47
3:C:1209:YJ0:C79	3:C:1209:YJ0:C81	2.93	0.47
3:D:1210:YJ0:C81	3:D:1210:YJ0:C79	2.93	0.47
1:A:439:TYR:OH	1:A:743:ASP:OD1	2.28	0.46
1:A:170:LEU:O	1:A:174:LEU:HD23	2.14	0.46
1:B:170:LEU:O	1:B:174:LEU:HD23	2.15	0.46
1:D:198:ALA:HB1	1:D:210:ILE:HD11	1.96	0.46
3:A:1207:YJ0:C79	3:A:1207:YJ0:C81	2.93	0.46
1:A:480:CYS:O	1:A:484:ILE:HD12	2.17	0.45
3:A:1210:YJ0:C1	1:D:618:LEU:HD23	2.47	0.45
1:D:480:CYS:O	1:D:484:ILE:HD12	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:618:LEU:HD23	3:B:1202:YJ0:C1	2.47	0.45
1:C:480:CYS:O	1:C:484:ILE:HD12	2.16	0.45
1:A:283:TYR:OH	1:A:318:ASP:OD2	2.25	0.45
1:B:480:CYS:O	1:B:484:ILE:HD12	2.17	0.44
1:B:618:LEU:HD23	3:C:1202:YJ0:C1	2.47	0.44
1:B:366:LEU:HD22	1:B:370:GLY:O	2.18	0.44
1:A:517:THR:O	1:A:520:THR:OG1	2.30	0.44
1:C:696:ILE:HG21	3:C:1202:YJ0:C18	2.48	0.44
1:C:618:LEU:HD23	3:D:1203:YJ0:C1	2.47	0.44
1:A:366:LEU:HD22	1:A:370:GLY:O	2.18	0.44
1:B:767:SER:N	1:B:771:THR:O	2.50	0.44
1:A:767:SER:N	1:A:771:THR:O	2.50	0.44
1:C:366:LEU:HD22	1:C:370:GLY:O	2.18	0.44
1:D:696:ILE:HG21	3:D:1203:YJ0:C18	2.48	0.44
1:C:392:ARG:NH2	1:C:402:LEU:O	2.50	0.43
1:D:366:LEU:HD22	1:D:370:GLY:O	2.18	0.43
1:A:469:VAL:O	1:A:473:ILE:HD12	2.19	0.43
1:C:469:VAL:O	1:C:473:ILE:HD12	2.19	0.43
1:C:632:LEU:HD21	1:C:699:LEU:CD1	2.49	0.43
1:D:469:VAL:O	1:D:473:ILE:HD12	2.19	0.43
1:D:632:LEU:HD21	1:D:699:LEU:CD1	2.49	0.43
1:B:469:VAL:O	1:B:473:ILE:HD12	2.19	0.43
1:D:767:SER:N	1:D:771:THR:O	2.50	0.43
1:A:632:LEU:HD21	1:A:699:LEU:CD1	2.49	0.42
1:B:632:LEU:HD21	1:B:699:LEU:CD1	2.49	0.42
1:A:524:PHE:O	1:A:528:ASN:ND2	2.53	0.42
1:B:524:PHE:O	1:B:528:ASN:ND2	2.53	0.42
1:B:236:TYR:O	1:B:238:GLY:N	2.52	0.42
1:D:524:PHE:O	1:D:528:ASN:ND2	2.53	0.42
1:A:686:LEU:O	1:A:687:SER:OG	2.31	0.42
1:C:524:PHE:O	1:C:528:ASN:ND2	2.53	0.42
1:C:552:LEU:HB3	1:C:588:ASN:HD21	1.85	0.42
1:D:654:VAL:HG23	1:D:655:PRO:HD3	2.02	0.42
1:A:654:VAL:HG23	1:A:655:PRO:HD3	2.02	0.42
1:B:228:ASN:O	1:B:229:SER:OG	2.32	0.42
1:C:436:ILE:O	1:C:440:ASN:N	2.51	0.42
1:D:236:TYR:O	1:D:238:GLY:N	2.52	0.42
1:B:654:VAL:HG23	1:B:655:PRO:HD3	2.02	0.42
1:C:767:SER:N	1:C:771:THR:O	2.50	0.42
1:D:686:LEU:O	1:D:687:SER:OG	2.31	0.42
1:B:552:LEU:HB3	1:B:588:ASN:HD21	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:552:LEU:HB3	1:D:588:ASN:HD21	1.85	0.41
1:B:283:TYR:OH	1:B:318:ASP:OD2	2.25	0.41
1:A:676:LEU:HD21	1:A:703:ILE:HG12	2.03	0.41
1:B:436:ILE:O	1:B:440:ASN:N	2.51	0.41
1:B:696:ILE:HG21	3:B:1202:YJ0:C18	2.51	0.41
1:D:590:LEU:O	1:D:593:THR:OG1	2.35	0.41
1:B:676:LEU:HD21	1:B:703:ILE:HG12	2.03	0.41
1:C:676:LEU:HD21	1:C:703:ILE:HG12	2.03	0.41
1:A:151:ARG:HB3	1:A:152:PRO:HD3	2.03	0.41
1:A:454:PRO:O	1:A:458:LEU:N	2.52	0.41
1:C:654:VAL:HG23	1:C:655:PRO:HD3	2.02	0.41
1:D:676:LEU:HD21	1:D:703:ILE:HG12	2.03	0.41
1:C:151:ARG:HB3	1:C:152:PRO:HD3	2.02	0.41
1:D:544:PHE:O	1:D:736:GLN:NE2	2.45	0.41
1:B:151:ARG:HB3	1:B:152:PRO:HD3	2.03	0.40
1:C:236:TYR:O	1:C:238:GLY:N	2.52	0.40
1:D:454:PRO:O	1:D:458:LEU:N	2.52	0.40
1:B:392:ARG:NH2	1:B:402:LEU:O	2.50	0.40
1:A:552:LEU:HB3	1:A:588:ASN:HD21	1.85	0.40
1:C:228:ASN:O	1:C:229:SER:OG	2.32	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	625/1132 (55%)	545 (87%)	78 (12%)	2 (0%)	41	70
1	B	625/1132 (55%)	545 (87%)	78 (12%)	2 (0%)	41	70
1	C	625/1132 (55%)	545 (87%)	78 (12%)	2 (0%)	41	70
1	D	625/1132 (55%)	545 (87%)	78 (12%)	2 (0%)	41	70
All	All	2500/4528 (55%)	2180 (87%)	312 (12%)	8 (0%)	44	70

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	501	PRO
1	B	501	PRO
1	C	501	PRO
1	D	501	PRO
1	A	503	ARG
1	B	503	ARG
1	C	503	ARG
1	D	503	ARG

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	555/987 (56%)	550 (99%)	5 (1%)	78	92
1	B	555/987 (56%)	550 (99%)	5 (1%)	78	92
1	C	555/987 (56%)	550 (99%)	5 (1%)	78	92
1	D	555/987 (56%)	550 (99%)	5 (1%)	78	92
All	All	2220/3948 (56%)	2200 (99%)	20 (1%)	79	92

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	204	ASN
1	A	207	ASN
1	A	232	ARG
1	A	338	ASN
1	A	641	ASN
1	B	204	ASN
1	B	207	ASN
1	B	232	ARG
1	B	338	ASN
1	B	641	ASN
1	C	204	ASN
1	C	207	ASN

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Mol	Chain	Res	Type
1	C	232	ARG
1	C	338	ASN
1	C	641	ASN
1	D	204	ASN
1	D	207	ASN
1	D	232	ARG
1	D	338	ASN
1	D	641	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	201	ASN
1	A	207	ASN
1	A	274	GLN
1	A	492	GLN
1	A	641	ASN
1	B	201	ASN
1	B	207	ASN
1	B	274	GLN
1	B	492	GLN
1	B	528	ASN
1	B	641	ASN
1	C	201	ASN
1	C	207	ASN
1	C	274	GLN
1	C	492	GLN
1	C	528	ASN
1	C	641	ASN
1	D	201	ASN
1	D	207	ASN
1	D	274	GLN
1	D	492	GLN
1	D	528	ASN
1	D	641	ASN

5.3.3 RNA

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)

Of 43 ligands modelled in this entry, 3 are monoatomic - leaving 40 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	9ZR	A	1206	-	55,55,55	0.31	0	61,63,63	0.30	0
2	9ZR	A	1205	-	55,55,55	0.31	0	61,63,63	0.42	0
2	9ZR	C	1201	-	55,55,55	0.31	0	61,63,63	0.90	5 (8%)
2	9ZR	D	1201	-	55,55,55	0.32	0	61,63,63	0.47	1 (1%)
2	9ZR	B	1203	-	55,55,55	0.30	0	61,63,63	0.34	0
2	9ZR	D	1204	-	55,55,55	0.30	0	61,63,63	0.34	0
2	9ZR	A	1204	-	12,12,55	0.18	0	11,11,63	0.12	0
2	9ZR	B	1210	-	55,55,55	0.32	0	61,63,63	0.47	1 (1%)
2	9ZR	A	1208	-	55,55,55	0.32	0	61,63,63	0.47	1 (1%)
2	9ZR	B	1204	-	55,55,55	0.30	0	61,63,63	0.37	0
3	YJ0	A	1210	-	35,35,90	0.40	0	58,58,138	0.60	0
2	9ZR	A	1203	-	43,43,55	0.32	0	49,51,63	0.34	0
2	9ZR	C	1205	-	43,43,55	0.32	0	49,51,63	0.34	0
2	9ZR	C	1204	-	55,55,55	0.30	0	61,63,63	0.37	0
2	9ZR	D	1202	-	55,55,55	0.31	0	61,63,63	0.90	5 (8%)
2	9ZR	C	1208	-	55,55,55	0.31	0	61,63,63	0.30	0
3	YJ0	B	1209	-	40,40,90	0.32	0	64,64,138	0.59	1 (1%)
3	YJ0	C	1202	-	35,35,90	0.40	0	58,58,138	0.60	0
3	YJ0	A	1207	-	40,40,90	0.32	0	64,64,138	0.59	1 (1%)
2	9ZR	A	1209	-	55,55,55	0.31	0	61,63,63	0.90	5 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	9ZR	B	1201	-	55,55,55	0.31	0	61,63,63	0.90	5 (8%)
2	9ZR	C	1210	-	55,55,55	0.32	0	61,63,63	0.47	1 (1%)
2	9ZR	D	1205	-	55,55,55	0.30	0	61,63,63	0.37	0
3	YJ0	B	1202	-	35,35,90	0.40	0	58,58,138	0.60	0
2	9ZR	A	1202	-	55,55,55	0.30	0	61,63,63	0.37	0
2	9ZR	C	1206	-	12,12,55	0.18	0	11,11,63	0.12	0
2	9ZR	C	1203	-	55,55,55	0.30	0	61,63,63	0.34	0
2	9ZR	D	1209	-	55,55,55	0.30	0	61,63,63	0.30	0
2	9ZR	D	1206	-	43,43,55	0.32	0	49,51,63	0.35	0
3	YJ0	C	1209	-	40,40,90	0.33	0	64,64,138	0.58	1 (1%)
2	9ZR	A	1201	-	55,55,55	0.30	0	61,63,63	0.34	0
2	9ZR	D	1208	-	55,55,55	0.31	0	61,63,63	0.42	0
2	9ZR	B	1207	-	55,55,55	0.31	0	61,63,63	0.42	0
2	9ZR	D	1207	-	12,12,55	0.18	0	11,11,63	0.12	0
2	9ZR	C	1207	-	55,55,55	0.31	0	61,63,63	0.42	0
3	YJ0	D	1210	-	40,40,90	0.32	0	64,64,138	0.59	1 (1%)
2	9ZR	B	1208	-	55,55,55	0.31	0	61,63,63	0.30	0
3	YJ0	D	1203	-	35,35,90	0.40	0	58,58,138	0.60	0
2	9ZR	B	1206	-	12,12,55	0.18	0	11,11,63	0.12	0
2	9ZR	B	1205	-	43,43,55	0.32	0	49,51,63	0.35	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	9ZR	A	1206	-	-	23/59/59/59	-
2	9ZR	A	1205	-	-	19/59/59/59	-
2	9ZR	C	1201	-	-	22/59/59/59	-
2	9ZR	D	1201	-	-	18/59/59/59	-
2	9ZR	B	1203	-	-	23/59/59/59	-
2	9ZR	D	1204	-	-	23/59/59/59	-
2	9ZR	A	1204	-	-	2/10/10/59	-
2	9ZR	B	1210	-	-	18/59/59/59	-
2	9ZR	A	1208	-	-	18/59/59/59	-
2	9ZR	B	1204	-	-	11/59/59/59	-
3	YJ0	A	1210	-	-	-	0/6/6/10
2	9ZR	A	1203	-	-	13/47/47/59	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	9ZR	C	1205	-	-	13/47/47/59	-
2	9ZR	C	1204	-	-	11/59/59/59	-
2	9ZR	D	1202	-	-	22/59/59/59	-
2	9ZR	C	1208	-	-	23/59/59/59	-
3	YJ0	B	1209	-	-	4/6/94/200	0/6/6/10
3	YJ0	C	1202	-	-	-	0/6/6/10
3	YJ0	A	1207	-	-	4/6/94/200	0/6/6/10
2	9ZR	A	1209	-	-	21/59/59/59	-
2	9ZR	B	1201	-	-	22/59/59/59	-
2	9ZR	C	1210	-	-	18/59/59/59	-
2	9ZR	D	1205	-	-	11/59/59/59	-
3	YJ0	B	1202	-	-	-	0/6/6/10
2	9ZR	A	1202	-	-	11/59/59/59	-
2	9ZR	C	1206	-	-	2/10/10/59	-
2	9ZR	C	1203	-	-	23/59/59/59	-
2	9ZR	D	1209	-	-	23/59/59/59	-
2	9ZR	D	1206	-	-	13/47/47/59	-
3	YJ0	C	1209	-	-	4/6/94/200	0/6/6/10
2	9ZR	A	1201	-	-	22/59/59/59	-
2	9ZR	D	1208	-	-	19/59/59/59	-
2	9ZR	B	1207	-	-	19/59/59/59	-
2	9ZR	D	1207	-	-	2/10/10/59	-
2	9ZR	C	1207	-	-	19/59/59/59	-
3	YJ0	D	1210	-	-	4/6/94/200	0/6/6/10
2	9ZR	B	1208	-	-	23/59/59/59	-
3	YJ0	D	1203	-	-	-	0/6/6/10
2	9ZR	B	1206	-	-	3/10/10/59	-
2	9ZR	B	1205	-	-	13/47/47/59	-

There are no bond length outliers.

All (28) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	1201	9ZR	O39-C26-C27	3.27	120.24	108.40
2	D	1202	9ZR	O39-C26-C27	3.27	120.23	108.40
2	C	1201	9ZR	O39-C26-C27	3.24	120.12	108.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1209	9ZR	C27-C26-C25	3.20	119.35	111.79
2	A	1209	9ZR	O39-C26-C27	3.19	119.95	108.40
2	C	1201	9ZR	C27-C26-C25	3.17	119.30	111.79
2	D	1202	9ZR	C27-C26-C25	3.13	119.19	111.79
2	B	1201	9ZR	C27-C26-C25	3.10	119.12	111.79
2	C	1201	9ZR	C8-C9-C10	2.98	147.62	124.73
2	B	1201	9ZR	C8-C9-C10	2.98	147.62	124.73
2	A	1209	9ZR	C8-C9-C10	2.98	147.61	124.73
2	D	1202	9ZR	C8-C9-C10	2.98	147.59	124.73
2	D	1202	9ZR	C51-C50-C49	2.88	146.84	124.73
2	B	1201	9ZR	C51-C50-C49	2.88	146.80	124.73
2	C	1201	9ZR	C51-C50-C49	2.87	146.78	124.73
2	A	1209	9ZR	C51-C50-C49	2.87	146.73	124.73
2	A	1209	9ZR	O39-C26-C25	2.62	117.89	108.40
2	B	1201	9ZR	O39-C26-C25	2.58	117.73	108.40
2	C	1201	9ZR	O39-C26-C25	2.57	117.71	108.40
2	D	1202	9ZR	O39-C26-C25	2.57	117.70	108.40
3	D	1210	YJ0	C81-O80-C5	2.36	118.19	113.72
3	A	1207	YJ0	C81-O80-C5	2.34	118.16	113.72
3	B	1209	YJ0	C81-O80-C5	2.34	118.15	113.72
3	C	1209	YJ0	C81-O80-C5	2.32	118.11	113.72
2	B	1210	9ZR	C26-O39-C40	2.20	123.19	117.79
2	A	1208	9ZR	C26-O39-C40	2.19	123.17	117.79
2	D	1201	9ZR	C26-O39-C40	2.17	123.14	117.79
2	C	1210	9ZR	C26-O39-C40	2.17	123.14	117.79

There are no chirality outliers.

All (539) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1201	9ZR	C33-O32-P29-O30
2	A	1201	9ZR	O32-C33-C34-N35
2	A	1203	9ZR	O32-C33-C34-N35
2	A	1203	9ZR	C27-O28-P29-O31
2	A	1205	9ZR	C21-C22-O24-C25
2	A	1205	9ZR	O23-C22-O24-C25
2	A	1206	9ZR	C34-C33-O32-P29
2	A	1206	9ZR	C33-O32-P29-O31
2	A	1208	9ZR	O32-C33-C34-N35
2	A	1208	9ZR	C42-C40-O39-C26
2	A	1208	9ZR	O41-C40-O39-C26
2	A	1209	9ZR	C33-O32-P29-O30

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Mol	Chain	Res	Type	Atoms
2	A	1209	9ZR	O32-C33-C34-N35
2	A	1209	9ZR	C27-O28-P29-O31
2	A	1209	9ZR	C27-O28-P29-O32
2	A	1209	9ZR	C27-O28-P29-O30
2	B	1201	9ZR	C33-O32-P29-O30
2	B	1201	9ZR	O32-C33-C34-N35
2	B	1201	9ZR	C27-O28-P29-O31
2	B	1201	9ZR	C27-O28-P29-O30
2	B	1203	9ZR	C33-O32-P29-O30
2	B	1203	9ZR	O32-C33-C34-N35
2	B	1205	9ZR	O32-C33-C34-N35
2	B	1205	9ZR	C27-O28-P29-O31
2	B	1207	9ZR	C21-C22-O24-C25
2	B	1207	9ZR	O23-C22-O24-C25
2	B	1208	9ZR	C34-C33-O32-P29
2	B	1208	9ZR	C33-O32-P29-O31
2	B	1210	9ZR	C33-O32-P29-O30
2	B	1210	9ZR	O32-C33-C34-N35
2	B	1210	9ZR	C42-C40-O39-C26
2	B	1210	9ZR	O41-C40-O39-C26
2	C	1201	9ZR	C33-O32-P29-O30
2	C	1201	9ZR	O32-C33-C34-N35
2	C	1201	9ZR	C27-O28-P29-O31
2	C	1201	9ZR	C27-O28-P29-O32
2	C	1201	9ZR	C27-O28-P29-O30
2	C	1203	9ZR	C33-O32-P29-O30
2	C	1203	9ZR	O32-C33-C34-N35
2	C	1205	9ZR	O32-C33-C34-N35
2	C	1205	9ZR	C27-O28-P29-O31
2	C	1207	9ZR	C21-C22-O24-C25
2	C	1207	9ZR	O23-C22-O24-C25
2	C	1208	9ZR	C34-C33-O32-P29
2	C	1208	9ZR	C33-O32-P29-O31
2	C	1210	9ZR	C33-O32-P29-O30
2	C	1210	9ZR	O32-C33-C34-N35
2	C	1210	9ZR	C42-C40-O39-C26
2	C	1210	9ZR	O41-C40-O39-C26
2	D	1201	9ZR	C33-O32-P29-O30
2	D	1201	9ZR	O32-C33-C34-N35
2	D	1201	9ZR	C42-C40-O39-C26
2	D	1201	9ZR	O41-C40-O39-C26
2	D	1202	9ZR	C33-O32-P29-O30

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Mol	Chain	Res	Type	Atoms
2	D	1202	9ZR	O32-C33-C34-N35
2	D	1202	9ZR	C27-O28-P29-O31
2	D	1202	9ZR	C27-O28-P29-O32
2	D	1202	9ZR	C27-O28-P29-O30
2	D	1204	9ZR	C33-O32-P29-O30
2	D	1204	9ZR	O32-C33-C34-N35
2	D	1206	9ZR	O32-C33-C34-N35
2	D	1206	9ZR	C27-O28-P29-O31
2	D	1208	9ZR	C21-C22-O24-C25
2	D	1208	9ZR	O23-C22-O24-C25
2	D	1209	9ZR	C34-C33-O32-P29
2	D	1209	9ZR	C33-O32-P29-O31
3	A	1207	YJ0	C26-C27-C28-C53
3	B	1209	YJ0	C26-C27-C28-C53
3	C	1209	YJ0	C26-C27-C28-C53
3	D	1210	YJ0	C26-C27-C28-C53
2	A	1206	9ZR	O24-C25-C26-O39
2	B	1208	9ZR	O24-C25-C26-O39
2	C	1208	9ZR	O24-C25-C26-O39
2	D	1209	9ZR	O24-C25-C26-O39
2	A	1203	9ZR	C19-C20-C21-C22
2	B	1205	9ZR	C19-C20-C21-C22
2	C	1205	9ZR	C19-C20-C21-C22
2	D	1206	9ZR	C19-C20-C21-C22
2	A	1205	9ZR	C40-C42-C43-C44
2	A	1206	9ZR	C19-C20-C21-C22
2	B	1207	9ZR	C40-C42-C43-C44
2	B	1208	9ZR	C19-C20-C21-C22
2	C	1208	9ZR	C19-C20-C21-C22
2	D	1209	9ZR	C19-C20-C21-C22
2	C	1207	9ZR	C40-C42-C43-C44
2	D	1208	9ZR	C40-C42-C43-C44
2	A	1202	9ZR	C19-C20-C21-C22
2	C	1204	9ZR	C19-C20-C21-C22
2	D	1205	9ZR	C19-C20-C21-C22
2	B	1204	9ZR	C19-C20-C21-C22
2	A	1205	9ZR	C27-O28-P29-O32
2	A	1206	9ZR	C33-O32-P29-O28
2	A	1206	9ZR	C27-O28-P29-O32
2	B	1201	9ZR	C27-O28-P29-O32
2	B	1207	9ZR	C27-O28-P29-O32
2	B	1208	9ZR	C33-O32-P29-O28

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Mol	Chain	Res	Type	Atoms
2	B	1208	9ZR	C27-O28-P29-O32
2	C	1207	9ZR	C27-O28-P29-O32
2	C	1208	9ZR	C33-O32-P29-O28
2	C	1208	9ZR	C27-O28-P29-O32
2	D	1208	9ZR	C27-O28-P29-O32
2	D	1209	9ZR	C33-O32-P29-O28
2	D	1209	9ZR	C27-O28-P29-O32
2	B	1210	9ZR	C43-C44-C45-C46
2	D	1201	9ZR	C43-C44-C45-C46
2	A	1201	9ZR	C19-C20-C21-C22
2	A	1208	9ZR	C43-C44-C45-C46
2	C	1210	9ZR	C43-C44-C45-C46
2	A	1209	9ZR	C2-C3-C4-C5
2	B	1201	9ZR	C2-C3-C4-C5
2	C	1201	9ZR	C2-C3-C4-C5
2	D	1202	9ZR	C2-C3-C4-C5
2	B	1203	9ZR	C19-C20-C21-C22
2	C	1203	9ZR	C19-C20-C21-C22
2	D	1204	9ZR	C19-C20-C21-C22
2	A	1203	9ZR	C44-C45-C46-C47
2	A	1208	9ZR	C12-C13-C14-C15
2	C	1205	9ZR	C44-C45-C46-C47
2	D	1206	9ZR	C44-C45-C46-C47
2	B	1205	9ZR	C44-C45-C46-C47
2	B	1210	9ZR	C12-C13-C14-C15
2	C	1210	9ZR	C12-C13-C14-C15
3	A	1207	YJ0	C27-C26-O25-C23
3	B	1209	YJ0	C27-C26-O25-C23
3	C	1209	YJ0	C27-C26-O25-C23
3	D	1210	YJ0	C27-C26-O25-C23
2	D	1201	9ZR	C12-C13-C14-C15
2	A	1206	9ZR	C12-C13-C14-C15
2	B	1208	9ZR	C12-C13-C14-C15
2	C	1208	9ZR	C12-C13-C14-C15
2	D	1209	9ZR	C12-C13-C14-C15
2	C	1207	9ZR	C43-C44-C45-C46
2	D	1204	9ZR	C46-C47-C48-C49
2	D	1208	9ZR	C43-C44-C45-C46
2	B	1207	9ZR	C43-C44-C45-C46
2	A	1201	9ZR	C44-C45-C46-C47
2	C	1203	9ZR	C44-C45-C46-C47
2	D	1202	9ZR	C18-C19-C20-C21

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Mol	Chain	Res	Type	Atoms
2	A	1201	9ZR	C6-C7-C8-C9
2	B	1203	9ZR	C46-C47-C48-C49
2	B	1203	9ZR	C6-C7-C8-C9
2	C	1203	9ZR	C46-C47-C48-C49
2	C	1203	9ZR	C6-C7-C8-C9
2	D	1204	9ZR	C6-C7-C8-C9
2	A	1209	9ZR	C18-C19-C20-C21
2	A	1202	9ZR	C14-C15-C16-C17
2	B	1201	9ZR	C18-C19-C20-C21
2	B	1203	9ZR	C44-C45-C46-C47
2	C	1201	9ZR	C18-C19-C20-C21
2	C	1204	9ZR	C14-C15-C16-C17
2	B	1203	9ZR	C52-C53-C54-C55
2	B	1204	9ZR	C14-C15-C16-C17
2	D	1204	9ZR	C52-C53-C54-C55
2	A	1201	9ZR	C52-C53-C54-C55
2	A	1205	9ZR	C43-C44-C45-C46
2	C	1203	9ZR	C52-C53-C54-C55
2	D	1204	9ZR	C44-C45-C46-C47
2	D	1205	9ZR	C14-C15-C16-C17
2	A	1209	9ZR	O24-C25-C26-O39
2	B	1201	9ZR	O24-C25-C26-O39
2	C	1201	9ZR	O24-C25-C26-O39
2	D	1202	9ZR	O24-C25-C26-O39
2	A	1201	9ZR	C46-C47-C48-C49
2	A	1206	9ZR	C10-C11-C12-C13
2	A	1206	9ZR	C6-C7-C8-C9
2	B	1208	9ZR	C6-C7-C8-C9
2	C	1208	9ZR	C6-C7-C8-C9
2	D	1209	9ZR	C6-C7-C8-C9
2	B	1201	9ZR	C33-O32-P29-O28
2	C	1201	9ZR	C33-O32-P29-O28
2	D	1202	9ZR	C33-O32-P29-O28
2	C	1207	9ZR	C17-C18-C19-C20
2	A	1203	9ZR	C26-C27-O28-P29
2	B	1205	9ZR	C26-C27-O28-P29
2	C	1205	9ZR	C26-C27-O28-P29
2	D	1206	9ZR	C26-C27-O28-P29
2	A	1205	9ZR	C3-C4-C5-C6
3	A	1207	YJ0	C26-C27-C28-C29
3	B	1209	YJ0	C26-C27-C28-C29
3	C	1209	YJ0	C26-C27-C28-C29

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Mol	Chain	Res	Type	Atoms
3	D	1210	YJ0	C26-C27-C28-C29
2	B	1207	9ZR	C3-C4-C5-C6
2	C	1207	9ZR	C3-C4-C5-C6
2	A	1206	9ZR	C5-C6-C7-C8
2	B	1208	9ZR	C5-C6-C7-C8
2	D	1208	9ZR	C3-C4-C5-C6
2	B	1208	9ZR	C10-C11-C12-C13
2	C	1208	9ZR	C10-C11-C12-C13
2	D	1209	9ZR	C10-C11-C12-C13
2	C	1208	9ZR	C5-C6-C7-C8
2	D	1209	9ZR	C5-C6-C7-C8
2	A	1203	9ZR	C49-C50-C51-C52
2	B	1205	9ZR	C49-C50-C51-C52
2	C	1205	9ZR	C49-C50-C51-C52
2	D	1206	9ZR	C49-C50-C51-C52
2	A	1205	9ZR	O24-C25-C26-C27
2	A	1206	9ZR	O24-C25-C26-C27
2	B	1207	9ZR	O24-C25-C26-C27
2	B	1208	9ZR	O24-C25-C26-C27
2	C	1207	9ZR	O24-C25-C26-C27
2	C	1208	9ZR	O24-C25-C26-C27
2	D	1208	9ZR	O24-C25-C26-C27
2	D	1209	9ZR	O24-C25-C26-C27
2	B	1207	9ZR	C17-C18-C19-C20
2	D	1208	9ZR	C17-C18-C19-C20
2	A	1203	9ZR	C16-C17-C18-C19
2	A	1205	9ZR	C17-C18-C19-C20
2	D	1209	9ZR	C52-C53-C54-C55
2	A	1209	9ZR	O39-C26-C27-O28
2	C	1201	9ZR	O39-C26-C27-O28
2	A	1201	9ZR	C4-C5-C6-C7
2	A	1206	9ZR	C45-C46-C47-C48
2	C	1208	9ZR	C52-C53-C54-C55
2	A	1204	9ZR	C53-C54-C55-C56
2	B	1208	9ZR	C52-C53-C54-C55
2	A	1201	9ZR	C50-C51-C52-C53
2	A	1208	9ZR	C6-C7-C8-C9
2	D	1201	9ZR	C6-C7-C8-C9
2	A	1201	9ZR	O24-C25-C26-O39
2	B	1203	9ZR	O24-C25-C26-O39
2	C	1203	9ZR	O24-C25-C26-O39
2	D	1204	9ZR	O24-C25-C26-O39

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Mol	Chain	Res	Type	Atoms
2	B	1206	9ZR	C53-C54-C55-C56
2	C	1206	9ZR	C53-C54-C55-C56
2	D	1207	9ZR	C53-C54-C55-C56
2	D	1209	9ZR	C44-C45-C46-C47
2	B	1203	9ZR	C4-C5-C6-C7
2	C	1203	9ZR	C4-C5-C6-C7
2	C	1208	9ZR	C44-C45-C46-C47
2	D	1204	9ZR	C4-C5-C6-C7
2	B	1208	9ZR	C44-C45-C46-C47
2	A	1206	9ZR	C44-C45-C46-C47
2	B	1208	9ZR	C45-C46-C47-C48
2	B	1210	9ZR	C6-C7-C8-C9
2	C	1210	9ZR	C6-C7-C8-C9
2	C	1208	9ZR	C45-C46-C47-C48
2	A	1202	9ZR	C11-C12-C13-C14
2	B	1205	9ZR	C16-C17-C18-C19
2	B	1204	9ZR	C11-C12-C13-C14
2	C	1205	9ZR	C16-C17-C18-C19
2	C	1204	9ZR	C11-C12-C13-C14
2	C	1210	9ZR	C14-C15-C16-C17
2	D	1205	9ZR	C11-C12-C13-C14
2	D	1209	9ZR	C45-C46-C47-C48
2	A	1208	9ZR	C14-C15-C16-C17
2	B	1210	9ZR	C14-C15-C16-C17
2	D	1201	9ZR	C14-C15-C16-C17
2	D	1206	9ZR	C16-C17-C18-C19
2	A	1206	9ZR	C52-C53-C54-C55
2	A	1201	9ZR	O24-C25-C26-C27
2	A	1202	9ZR	O24-C25-C26-C27
2	B	1203	9ZR	O24-C25-C26-C27
2	B	1204	9ZR	O24-C25-C26-C27
2	C	1203	9ZR	O24-C25-C26-C27
2	C	1204	9ZR	O24-C25-C26-C27
2	D	1204	9ZR	O24-C25-C26-C27
2	D	1205	9ZR	O24-C25-C26-C27
2	A	1209	9ZR	C33-O32-P29-O28
2	C	1204	9ZR	C27-O28-P29-O32
2	D	1205	9ZR	C27-O28-P29-O32
2	D	1202	9ZR	O39-C26-C27-O28
2	A	1205	9ZR	O24-C25-C26-O39
2	A	1208	9ZR	O24-C25-C26-O39
2	B	1207	9ZR	O24-C25-C26-O39

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Mol	Chain	Res	Type	Atoms
2	B	1210	9ZR	O24-C25-C26-O39
2	C	1207	9ZR	O24-C25-C26-O39
2	C	1210	9ZR	O24-C25-C26-O39
2	D	1201	9ZR	O24-C25-C26-O39
2	D	1208	9ZR	O24-C25-C26-O39
2	A	1206	9ZR	C26-C27-O28-P29
2	A	1209	9ZR	C45-C46-C47-C48
2	B	1201	9ZR	C45-C46-C47-C48
2	C	1201	9ZR	C45-C46-C47-C48
2	D	1202	9ZR	C45-C46-C47-C48
2	B	1201	9ZR	O39-C26-C27-O28
2	A	1202	9ZR	O24-C25-C26-O39
2	B	1204	9ZR	O24-C25-C26-O39
2	C	1204	9ZR	O24-C25-C26-O39
2	D	1205	9ZR	O24-C25-C26-O39
2	B	1210	9ZR	C46-C47-C48-C49
2	C	1210	9ZR	C46-C47-C48-C49
2	D	1201	9ZR	C46-C47-C48-C49
2	A	1201	9ZR	C53-C54-C55-C56
2	B	1203	9ZR	C53-C54-C55-C56
2	C	1203	9ZR	C53-C54-C55-C56
2	A	1208	9ZR	C46-C47-C48-C49
2	B	1203	9ZR	C50-C51-C52-C53
2	C	1203	9ZR	C50-C51-C52-C53
2	D	1204	9ZR	C50-C51-C52-C53
2	A	1201	9ZR	C33-O32-P29-O28
2	A	1202	9ZR	C27-O28-P29-O32
2	B	1203	9ZR	C33-O32-P29-O28
2	B	1204	9ZR	C27-O28-P29-O32
2	C	1203	9ZR	C33-O32-P29-O28
2	D	1204	9ZR	C33-O32-P29-O28
2	D	1204	9ZR	C53-C54-C55-C56
2	B	1208	9ZR	C26-C27-O28-P29
2	C	1208	9ZR	C26-C27-O28-P29
2	D	1209	9ZR	C26-C27-O28-P29
2	A	1205	9ZR	C27-O28-P29-O30
2	A	1206	9ZR	C27-O28-P29-O30
2	A	1208	9ZR	C33-O32-P29-O30
2	B	1207	9ZR	C27-O28-P29-O30
2	B	1208	9ZR	C27-O28-P29-O30
2	C	1207	9ZR	C27-O28-P29-O30
2	C	1208	9ZR	C27-O28-P29-O30

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Mol	Chain	Res	Type	Atoms
2	D	1208	9ZR	C27-O28-P29-O30
2	D	1209	9ZR	C27-O28-P29-O30
2	B	1201	9ZR	C1-C2-C3-C4
2	A	1209	9ZR	C25-C26-C27-O28
2	B	1201	9ZR	C25-C26-C27-O28
2	C	1201	9ZR	C25-C26-C27-O28
2	D	1202	9ZR	C25-C26-C27-O28
2	C	1201	9ZR	C1-C2-C3-C4
2	D	1202	9ZR	C1-C2-C3-C4
2	C	1201	9ZR	C34-C33-O32-P29
2	D	1208	9ZR	C34-C33-O32-P29
2	A	1209	9ZR	C1-C2-C3-C4
2	A	1205	9ZR	C46-C47-C48-C49
2	C	1207	9ZR	C46-C47-C48-C49
2	A	1203	9ZR	O39-C26-C27-O28
2	B	1205	9ZR	O39-C26-C27-O28
2	C	1205	9ZR	O39-C26-C27-O28
2	D	1206	9ZR	O39-C26-C27-O28
2	A	1206	9ZR	O32-C33-C34-N35
2	A	1208	9ZR	O24-C25-C26-C27
2	B	1208	9ZR	O32-C33-C34-N35
2	B	1210	9ZR	O24-C25-C26-C27
2	C	1208	9ZR	O32-C33-C34-N35
2	C	1210	9ZR	O24-C25-C26-C27
2	D	1201	9ZR	O24-C25-C26-C27
2	D	1209	9ZR	O32-C33-C34-N35
2	B	1207	9ZR	C46-C47-C48-C49
2	D	1208	9ZR	C46-C47-C48-C49
2	B	1204	9ZR	C17-C18-C19-C20
2	A	1209	9ZR	C49-C50-C51-C52
2	C	1201	9ZR	C49-C50-C51-C52
2	D	1202	9ZR	C49-C50-C51-C52
2	A	1201	9ZR	C13-C14-C15-C16
2	C	1203	9ZR	C13-C14-C15-C16
2	D	1204	9ZR	C13-C14-C15-C16
2	C	1204	9ZR	C17-C18-C19-C20
2	B	1203	9ZR	C13-C14-C15-C16
2	D	1205	9ZR	C17-C18-C19-C20
2	B	1201	9ZR	C49-C50-C51-C52
2	A	1201	9ZR	C26-C27-O28-P29
2	A	1202	9ZR	C17-C18-C19-C20
2	A	1203	9ZR	C33-O32-P29-O28

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Mol	Chain	Res	Type	Atoms
2	B	1205	9ZR	C33-O32-P29-O28
2	C	1205	9ZR	C33-O32-P29-O28
2	D	1206	9ZR	C33-O32-P29-O28
2	A	1208	9ZR	C16-C17-C18-C19
2	D	1209	9ZR	C15-C16-C17-C18
2	B	1208	9ZR	C15-C16-C17-C18
2	C	1208	9ZR	C15-C16-C17-C18
2	B	1210	9ZR	C16-C17-C18-C19
2	C	1210	9ZR	C16-C17-C18-C19
2	B	1203	9ZR	C26-C27-O28-P29
2	C	1203	9ZR	C26-C27-O28-P29
2	D	1204	9ZR	C26-C27-O28-P29
2	D	1201	9ZR	C16-C17-C18-C19
2	D	1205	9ZR	C18-C19-C20-C21
2	C	1210	9ZR	C49-C50-C51-C52
2	C	1204	9ZR	C18-C19-C20-C21
2	B	1201	9ZR	C16-C17-C18-C19
2	C	1201	9ZR	C16-C17-C18-C19
2	A	1202	9ZR	C18-C19-C20-C21
2	B	1204	9ZR	C18-C19-C20-C21
2	B	1210	9ZR	C49-C50-C51-C52
2	D	1202	9ZR	C16-C17-C18-C19
2	A	1206	9ZR	C9-C10-C11-C12
2	B	1208	9ZR	C9-C10-C11-C12
2	C	1208	9ZR	C9-C10-C11-C12
2	D	1201	9ZR	C49-C50-C51-C52
2	D	1209	9ZR	C9-C10-C11-C12
2	A	1209	9ZR	C16-C17-C18-C19
2	A	1206	9ZR	C15-C16-C17-C18
2	C	1203	9ZR	C11-C12-C13-C14
2	D	1204	9ZR	C11-C12-C13-C14
2	A	1201	9ZR	C11-C12-C13-C14
2	B	1203	9ZR	C11-C12-C13-C14
2	A	1208	9ZR	O39-C26-C27-O28
2	B	1210	9ZR	O39-C26-C27-O28
2	C	1210	9ZR	O39-C26-C27-O28
2	D	1201	9ZR	O39-C26-C27-O28
2	C	1203	9ZR	C12-C13-C14-C15
2	B	1203	9ZR	C12-C13-C14-C15
2	D	1204	9ZR	C12-C13-C14-C15
2	D	1201	9ZR	C20-C21-C22-O24
2	A	1208	9ZR	C49-C50-C51-C52

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Mol	Chain	Res	Type	Atoms
2	C	1201	9ZR	C7-C8-C9-C10
2	D	1202	9ZR	C7-C8-C9-C10
2	B	1203	9ZR	C5-C6-C7-C8
2	C	1203	9ZR	C5-C6-C7-C8
2	A	1201	9ZR	C12-C13-C14-C15
2	A	1201	9ZR	C5-C6-C7-C8
2	A	1208	9ZR	C20-C21-C22-O24
2	B	1210	9ZR	C20-C21-C22-O24
2	D	1204	9ZR	C5-C6-C7-C8
2	A	1202	9ZR	C7-C8-C9-C10
2	A	1206	9ZR	C47-C48-C49-C50
2	B	1201	9ZR	C47-C48-C49-C50
2	B	1207	9ZR	C9-C10-C11-C12
2	C	1207	9ZR	C9-C10-C11-C12
2	C	1207	9ZR	C47-C48-C49-C50
2	D	1208	9ZR	C9-C10-C11-C12
2	D	1208	9ZR	C47-C48-C49-C50
2	C	1210	9ZR	C20-C21-C22-O24
2	B	1210	9ZR	C15-C16-C17-C18
2	C	1210	9ZR	C15-C16-C17-C18
2	A	1203	9ZR	C25-C26-C27-O28
2	B	1205	9ZR	C25-C26-C27-O28
2	C	1205	9ZR	C25-C26-C27-O28
2	D	1206	9ZR	C25-C26-C27-O28
2	A	1209	9ZR	C7-C8-C9-C10
2	B	1201	9ZR	C7-C8-C9-C10
2	B	1207	9ZR	C47-C48-C49-C50
2	D	1209	9ZR	C47-C48-C49-C50
2	A	1208	9ZR	C15-C16-C17-C18
2	A	1208	9ZR	C51-C52-C53-C54
2	D	1201	9ZR	C15-C16-C17-C18
2	A	1205	9ZR	C9-C10-C11-C12
2	B	1207	9ZR	C7-C8-C9-C10
2	C	1204	9ZR	C7-C8-C9-C10
2	C	1207	9ZR	C7-C8-C9-C10
2	D	1205	9ZR	C7-C8-C9-C10
2	A	1202	9ZR	C9-C10-C11-C12
2	A	1205	9ZR	C47-C48-C49-C50
2	A	1209	9ZR	C47-C48-C49-C50
2	B	1204	9ZR	C9-C10-C11-C12
2	B	1204	9ZR	C7-C8-C9-C10
2	B	1208	9ZR	C47-C48-C49-C50

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Mol	Chain	Res	Type	Atoms
2	C	1201	9ZR	C47-C48-C49-C50
2	C	1204	9ZR	C9-C10-C11-C12
2	D	1202	9ZR	C47-C48-C49-C50
2	D	1205	9ZR	C9-C10-C11-C12
2	D	1208	9ZR	C7-C8-C9-C10
2	A	1203	9ZR	C27-C26-O39-C40
2	B	1205	9ZR	C27-C26-O39-C40
2	C	1205	9ZR	C27-C26-O39-C40
2	D	1206	9ZR	C27-C26-O39-C40
2	A	1201	9ZR	C51-C52-C53-C54
2	D	1202	9ZR	C20-C21-C22-O24
2	A	1202	9ZR	C49-C50-C51-C52
2	A	1205	9ZR	C7-C8-C9-C10
2	A	1206	9ZR	C49-C50-C51-C52
2	B	1204	9ZR	C49-C50-C51-C52
2	B	1208	9ZR	C49-C50-C51-C52
2	C	1204	9ZR	C49-C50-C51-C52
2	C	1208	9ZR	C47-C48-C49-C50
2	D	1205	9ZR	C49-C50-C51-C52
2	A	1209	9ZR	C20-C21-C22-O24
2	B	1201	9ZR	C20-C21-C22-O24
2	C	1201	9ZR	C20-C21-C22-O24
2	C	1207	9ZR	C49-C50-C51-C52
2	C	1208	9ZR	C49-C50-C51-C52
2	D	1208	9ZR	C49-C50-C51-C52
2	D	1209	9ZR	C49-C50-C51-C52
2	A	1206	9ZR	C20-C21-C22-O24
2	C	1208	9ZR	C20-C21-C22-O24
2	D	1204	9ZR	O39-C40-C42-C43
2	D	1209	9ZR	C20-C21-C22-O24
2	B	1207	9ZR	C49-C50-C51-C52
2	C	1203	9ZR	C51-C52-C53-C54
2	B	1203	9ZR	C51-C52-C53-C54
2	B	1206	9ZR	C44-C45-C46-C47
2	B	1203	9ZR	O39-C40-C42-C43
2	B	1208	9ZR	C20-C21-C22-O24
2	C	1203	9ZR	O39-C40-C42-C43
2	C	1206	9ZR	C44-C45-C46-C47
2	D	1204	9ZR	C51-C52-C53-C54
2	D	1207	9ZR	C44-C45-C46-C47
3	A	1207	YJ0	C22-C23-O25-C26
3	B	1209	YJ0	C22-C23-O25-C26

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Mol	Chain	Res	Type	Atoms
3	C	1209	YJ0	C22-C23-O25-C26
3	D	1210	YJ0	C22-C23-O25-C26
2	A	1204	9ZR	C44-C45-C46-C47
2	A	1205	9ZR	C20-C21-C22-O24
2	B	1207	9ZR	C20-C21-C22-O24
2	D	1202	9ZR	C20-C21-C22-O23
2	A	1205	9ZR	C14-C15-C16-C17
2	D	1201	9ZR	C13-C14-C15-C16
2	A	1203	9ZR	C27-O28-P29-O30
2	B	1205	9ZR	C27-O28-P29-O30
2	C	1205	9ZR	C27-O28-P29-O30
2	D	1206	9ZR	C27-O28-P29-O30
2	B	1210	9ZR	C51-C52-C53-C54
2	B	1201	9ZR	C20-C21-C22-O23
2	C	1201	9ZR	C20-C21-C22-O23
2	C	1207	9ZR	C20-C21-C22-O24
2	D	1208	9ZR	C20-C21-C22-O24
2	A	1209	9ZR	C20-C21-C22-O23
2	B	1203	9ZR	C10-C11-C12-C13
2	C	1203	9ZR	C10-C11-C12-C13
2	D	1204	9ZR	C10-C11-C12-C13
2	D	1204	9ZR	O41-C40-C42-C43
2	A	1205	9ZR	C49-C50-C51-C52
2	C	1210	9ZR	C51-C52-C53-C54
2	A	1201	9ZR	C34-C33-O32-P29
2	A	1203	9ZR	C25-C26-O39-C40
2	A	1205	9ZR	C34-C33-O32-P29
2	A	1209	9ZR	C34-C33-O32-P29
2	B	1201	9ZR	C34-C33-O32-P29
2	B	1203	9ZR	C34-C33-O32-P29
2	B	1205	9ZR	C25-C26-O39-C40
2	B	1207	9ZR	C34-C33-O32-P29
2	C	1203	9ZR	C34-C33-O32-P29
2	C	1205	9ZR	C25-C26-O39-C40
2	C	1207	9ZR	C34-C33-O32-P29
2	D	1202	9ZR	C34-C33-O32-P29
2	D	1204	9ZR	C34-C33-O32-P29
2	D	1206	9ZR	C25-C26-O39-C40
2	C	1203	9ZR	O41-C40-C42-C43
2	B	1210	9ZR	C13-C14-C15-C16
2	D	1201	9ZR	C51-C52-C53-C54
2	A	1209	9ZR	O39-C40-C42-C43

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Mol	Chain	Res	Type	Atoms
2	B	1203	9ZR	O41-C40-C42-C43
2	C	1210	9ZR	C13-C14-C15-C16
2	A	1201	9ZR	O39-C40-C42-C43
2	A	1208	9ZR	C13-C14-C15-C16
2	B	1206	9ZR	C45-C46-C47-C48
2	B	1201	9ZR	O39-C40-C42-C43
2	C	1201	9ZR	O39-C40-C42-C43
2	D	1202	9ZR	O39-C40-C42-C43
2	B	1207	9ZR	C14-C15-C16-C17
2	A	1206	9ZR	C20-C21-C22-O23
2	B	1208	9ZR	C20-C21-C22-O23
2	D	1209	9ZR	C20-C21-C22-O23
2	D	1208	9ZR	C14-C15-C16-C17
2	A	1201	9ZR	O41-C40-C42-C43
2	C	1208	9ZR	C20-C21-C22-O23
2	C	1207	9ZR	C14-C15-C16-C17
2	A	1205	9ZR	C20-C21-C22-O23
2	B	1201	9ZR	O41-C40-C42-C43
2	B	1207	9ZR	C20-C21-C22-O23
2	C	1201	9ZR	O41-C40-C42-C43
2	D	1202	9ZR	O41-C40-C42-C43
2	C	1207	9ZR	C20-C21-C22-O23
2	D	1208	9ZR	C20-C21-C22-O23

There are no ring outliers.

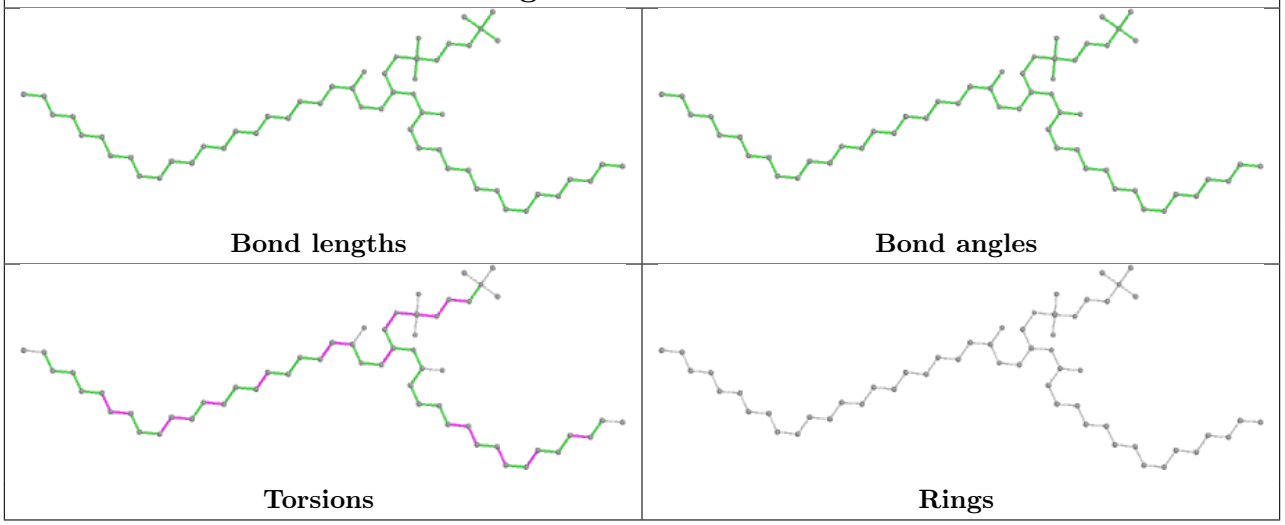
8 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1210	YJ0	3	0
3	B	1209	YJ0	1	0
3	C	1202	YJ0	2	0
3	A	1207	YJ0	1	0
3	B	1202	YJ0	2	0
3	C	1209	YJ0	1	0
3	D	1210	YJ0	1	0
3	D	1203	YJ0	2	0

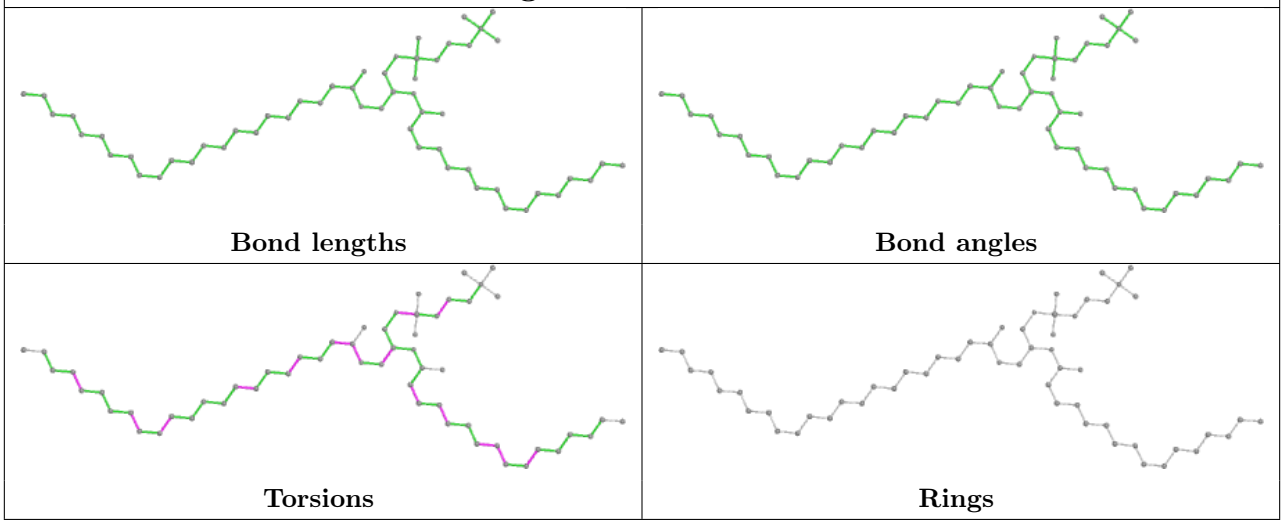
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier.

Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

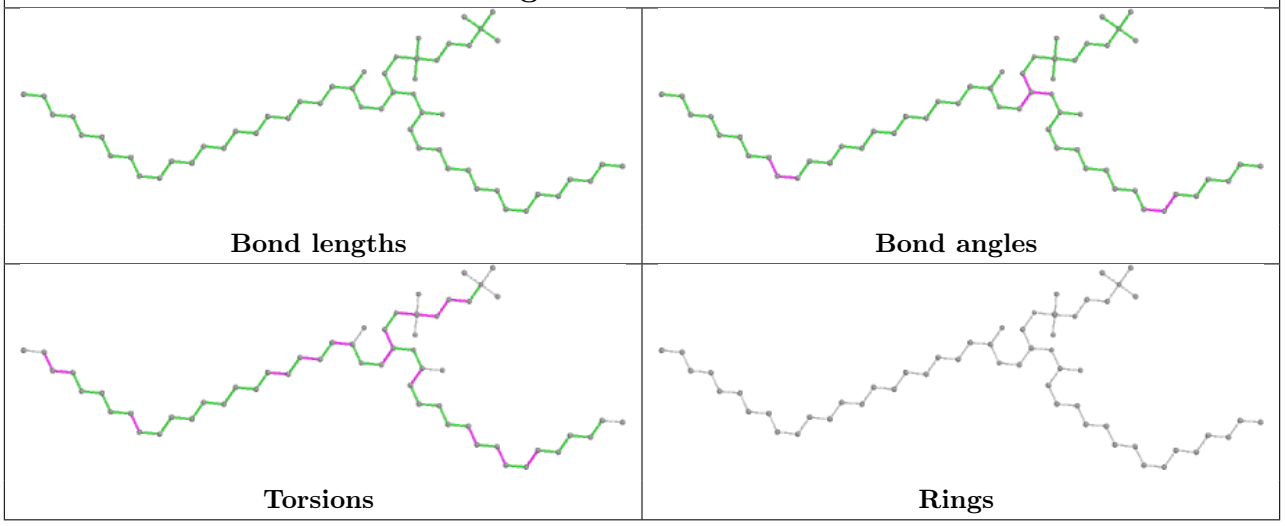
Ligand 9ZR A 1206



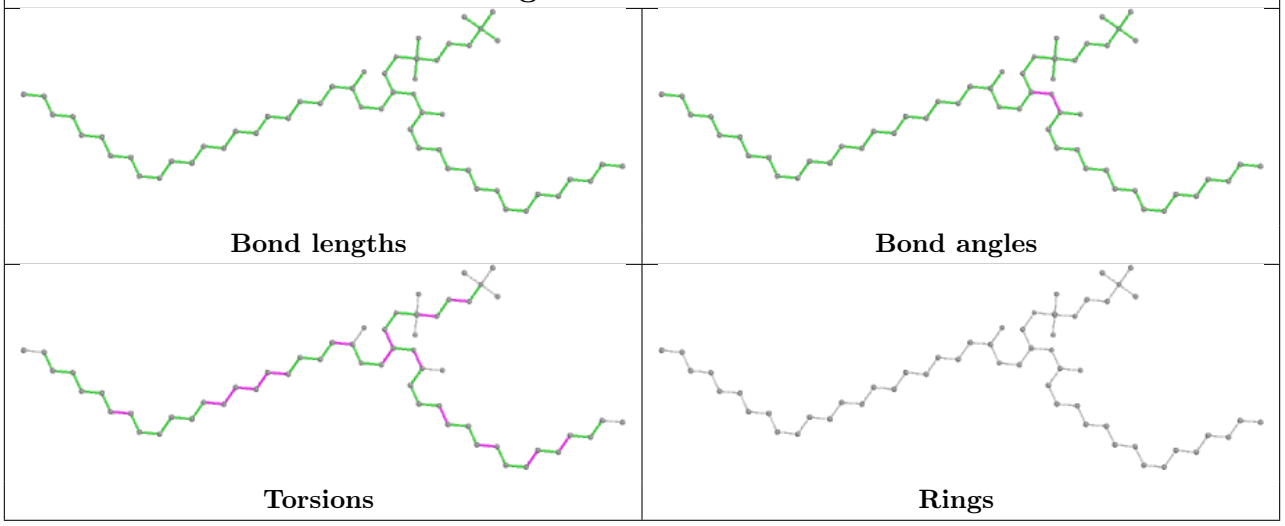
Ligand 9ZR A 1205



Ligand 9ZR C 1201



Ligand 9ZR D 1201



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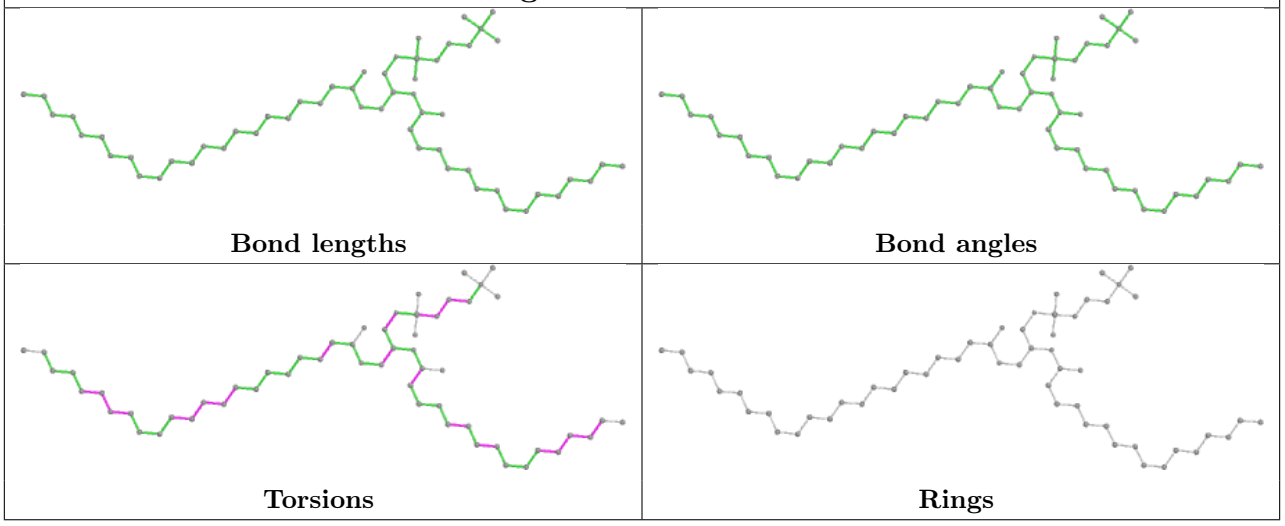
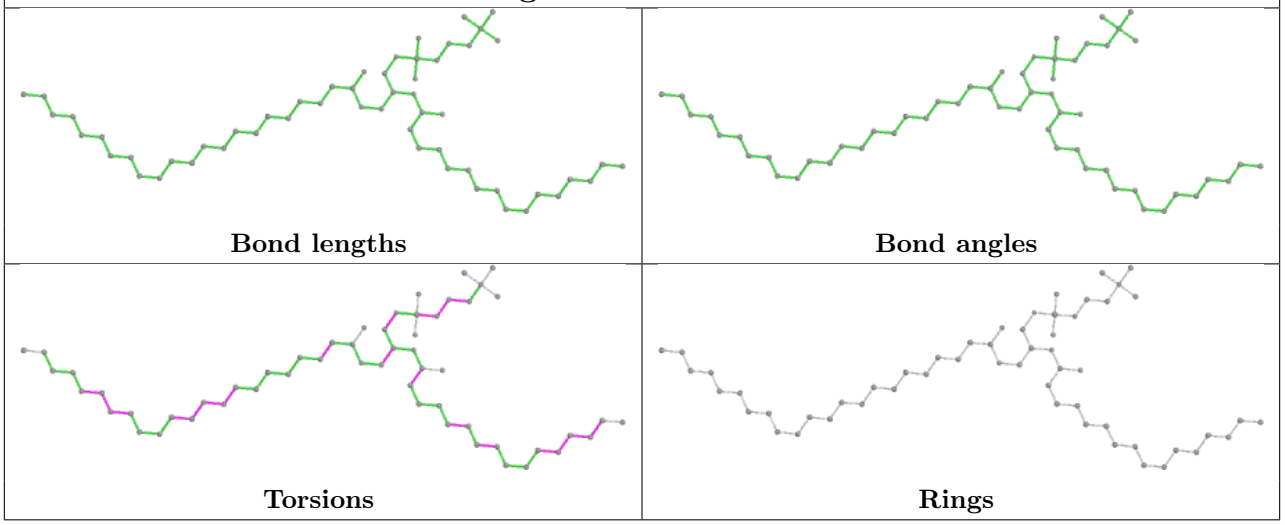


Ligand 9ZR D 1204



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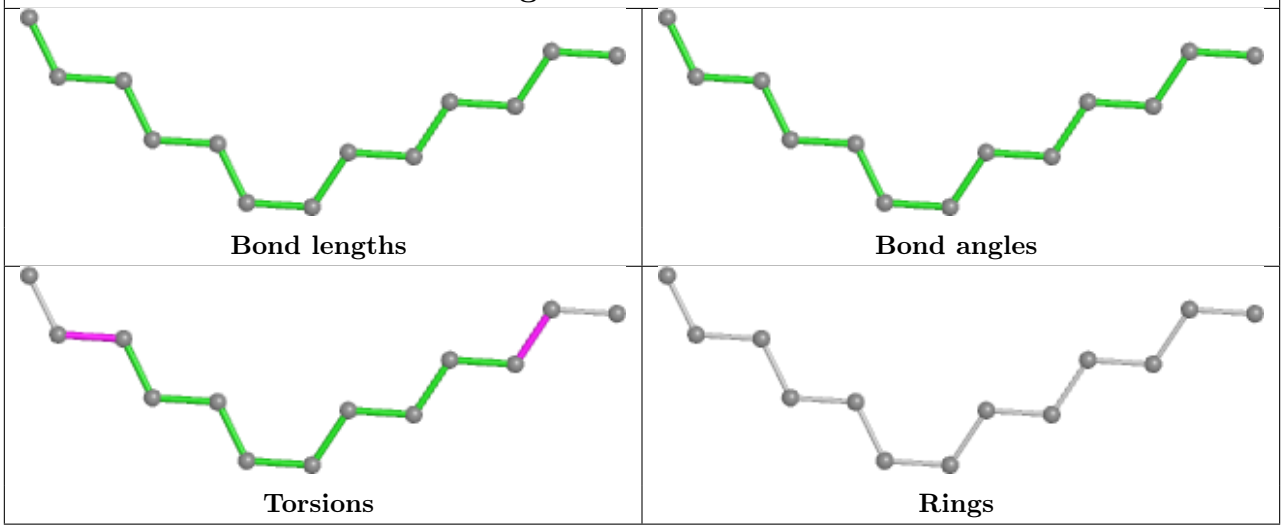

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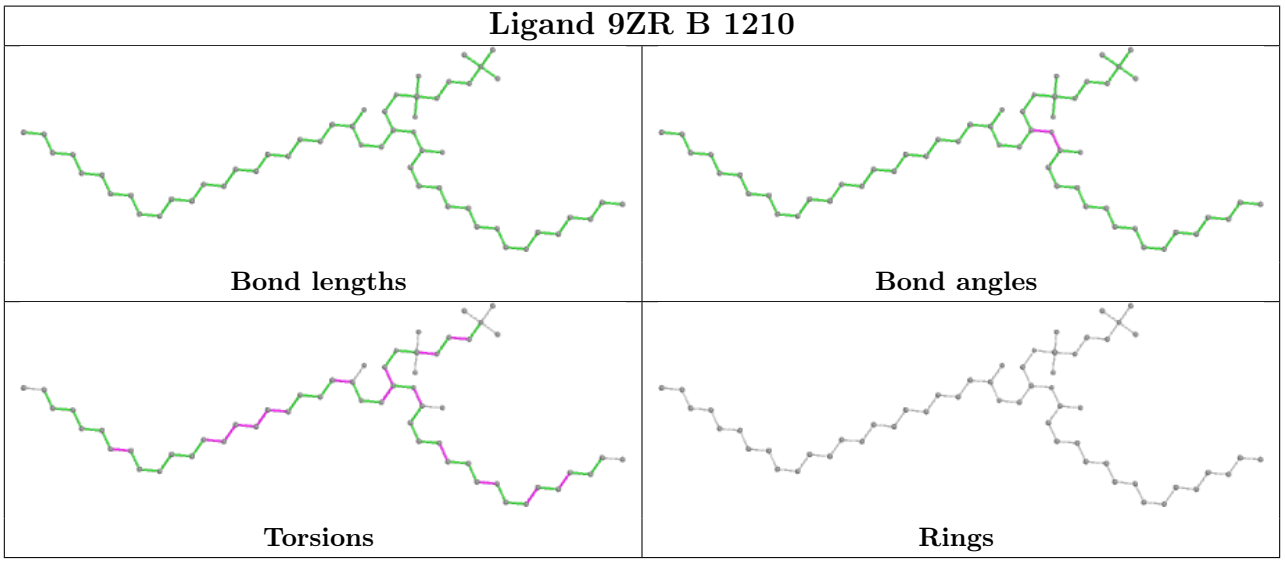

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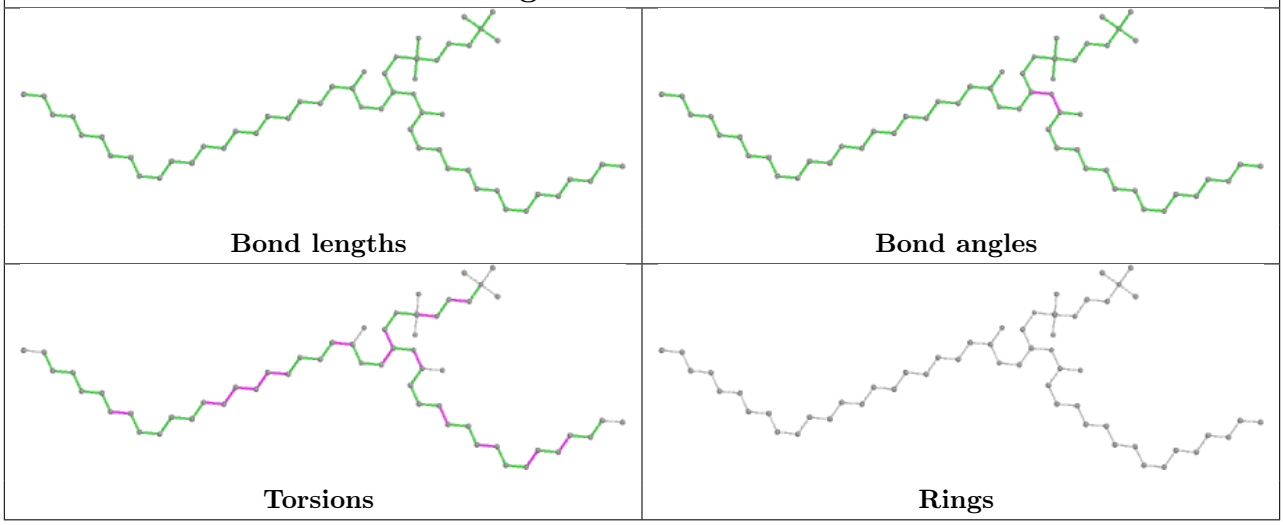

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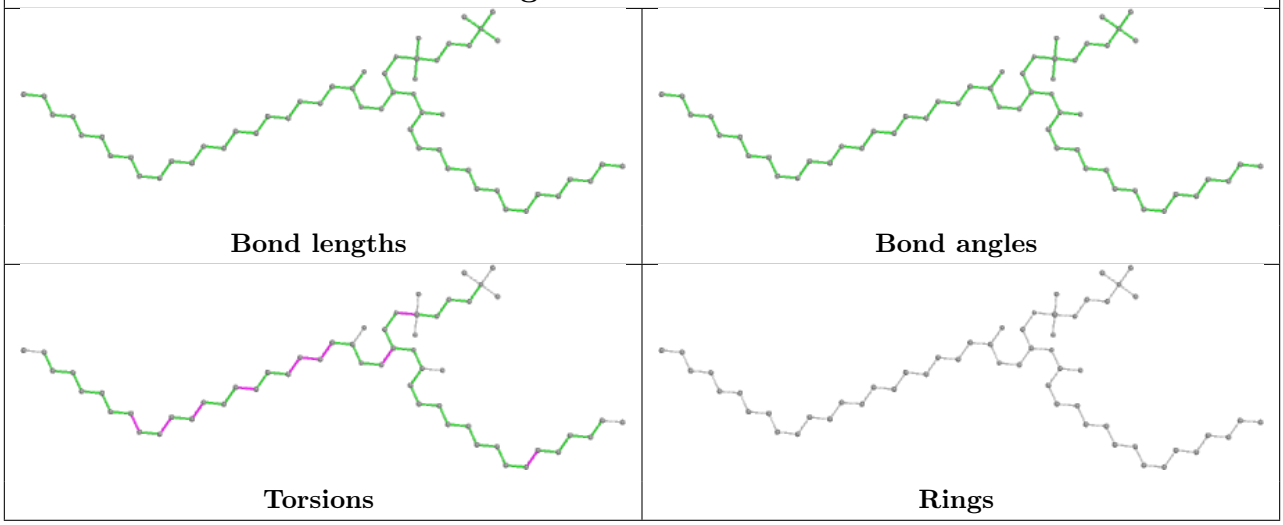

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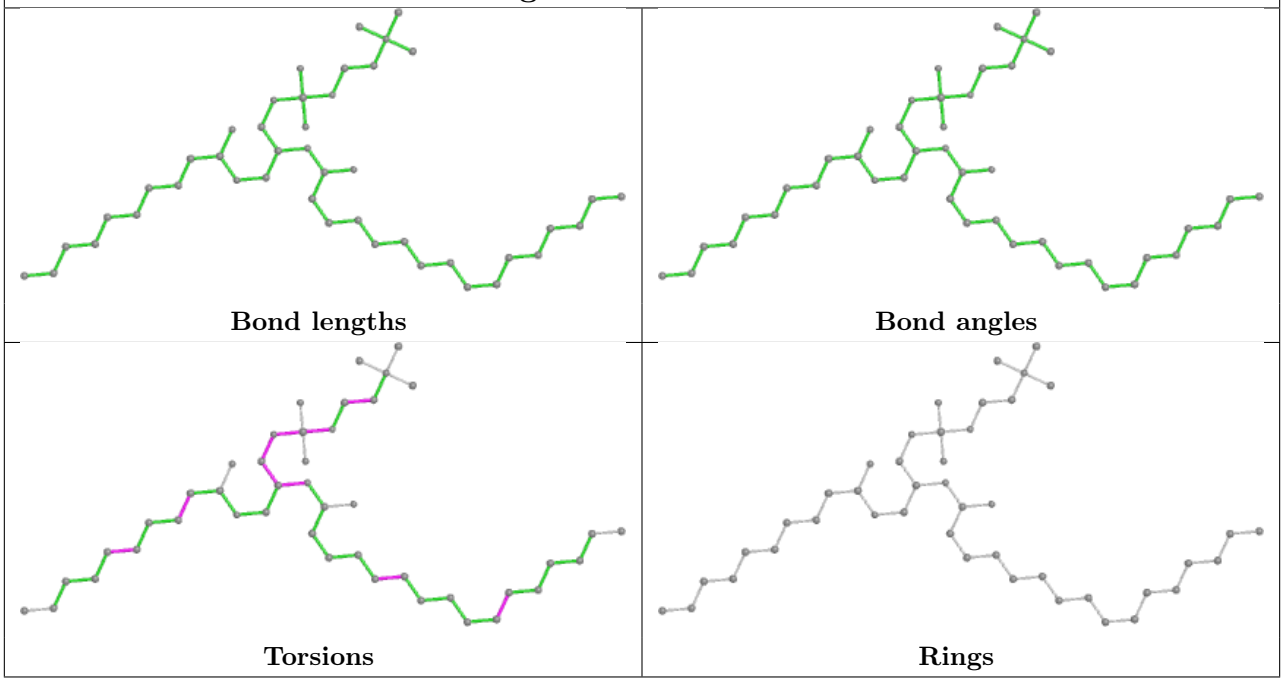

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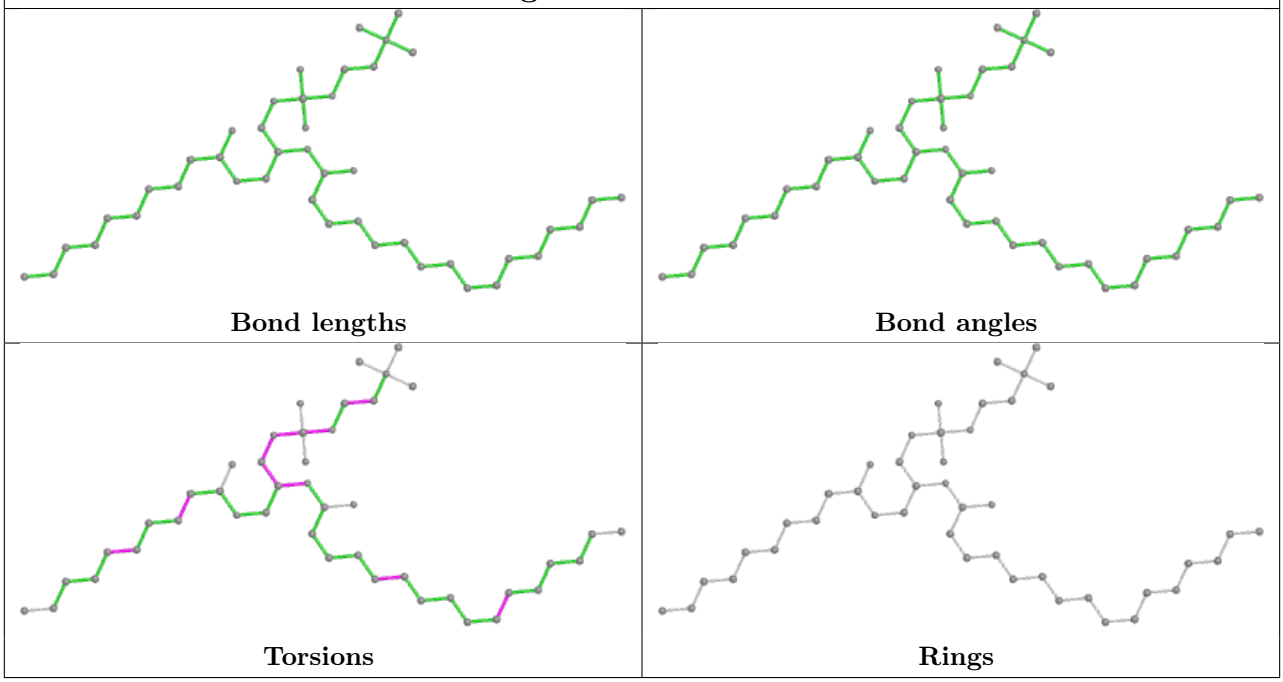

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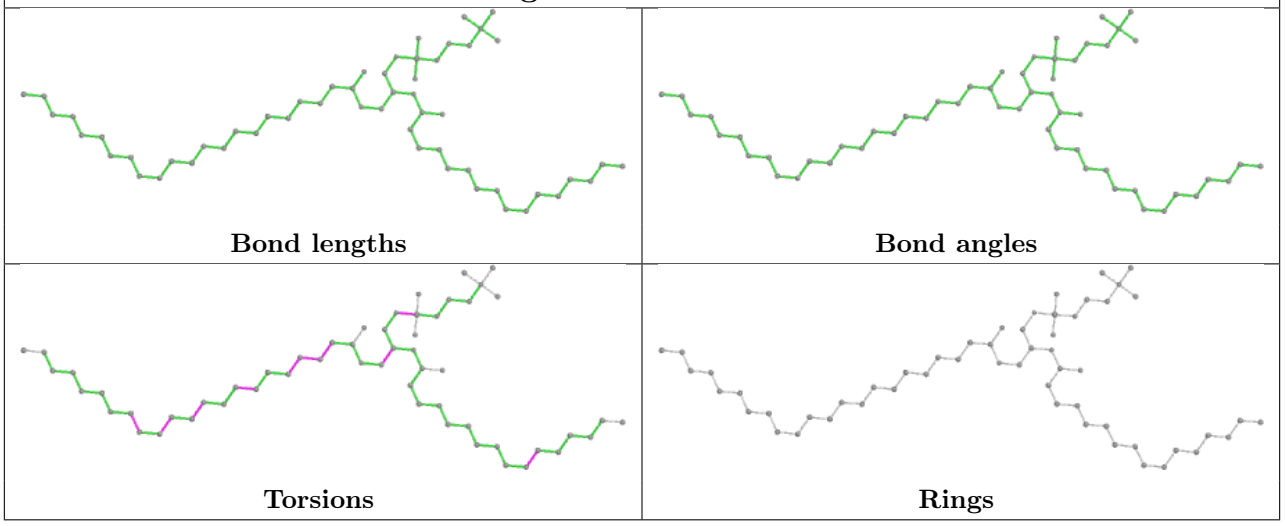

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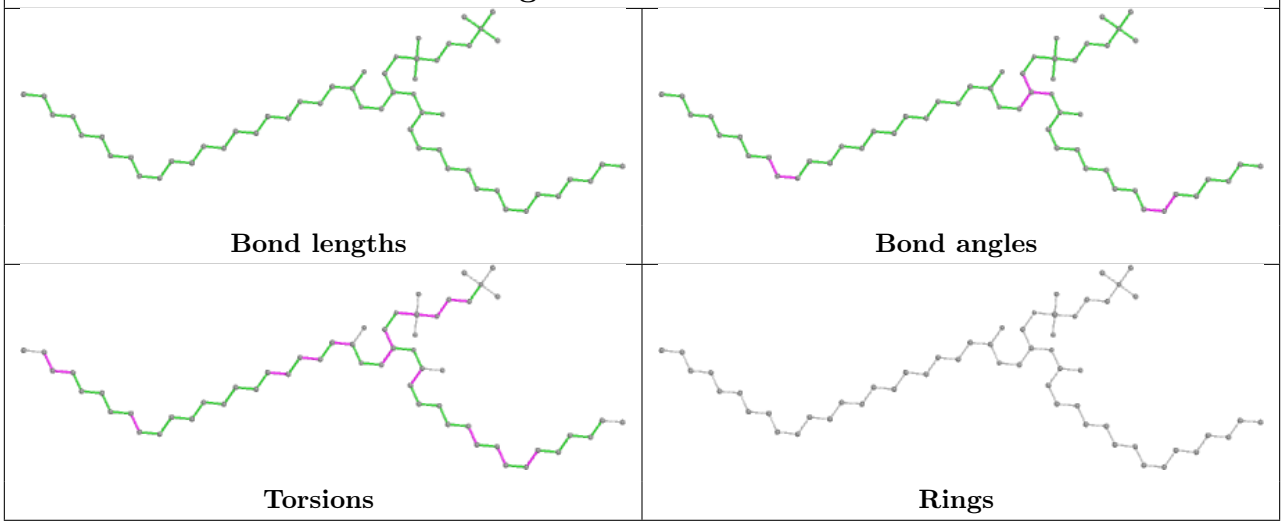

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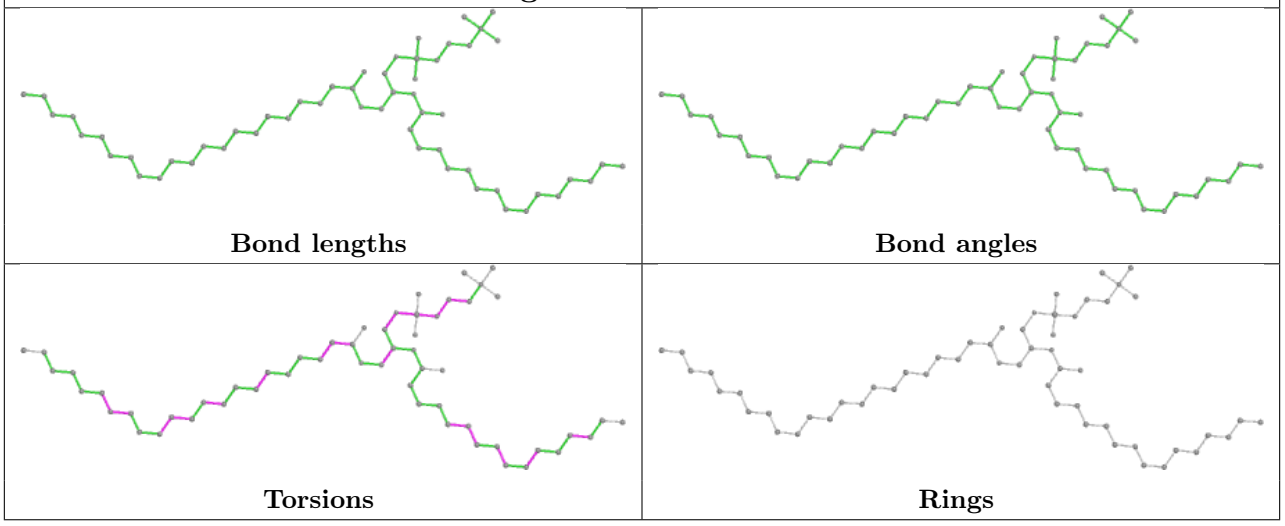
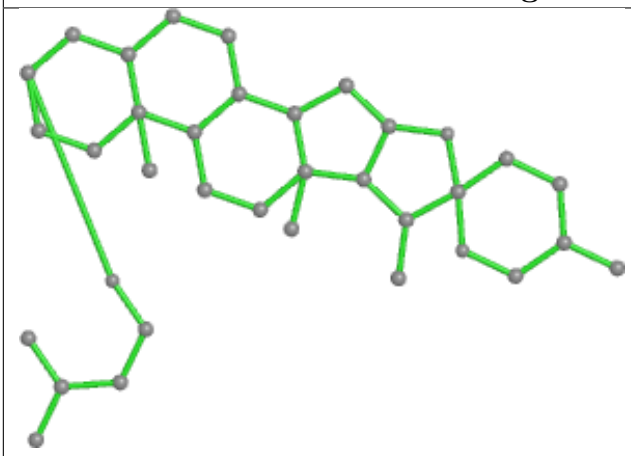
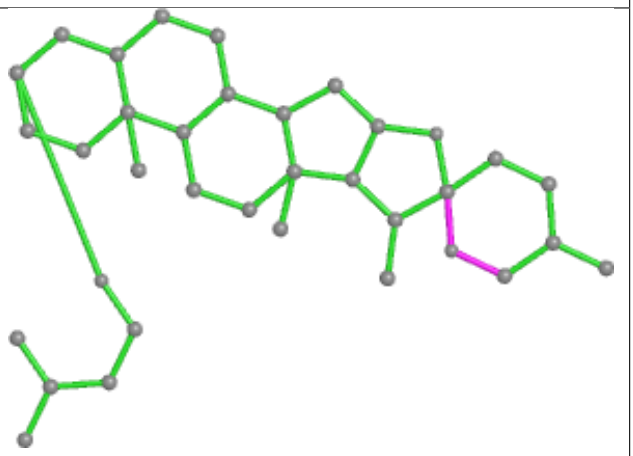


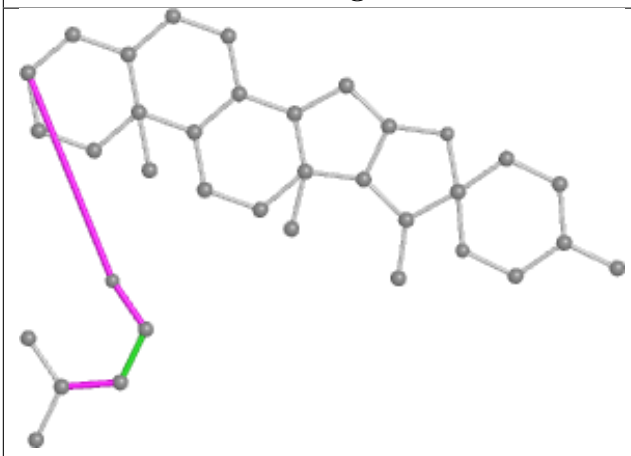
Ligand YJ0 B 1209



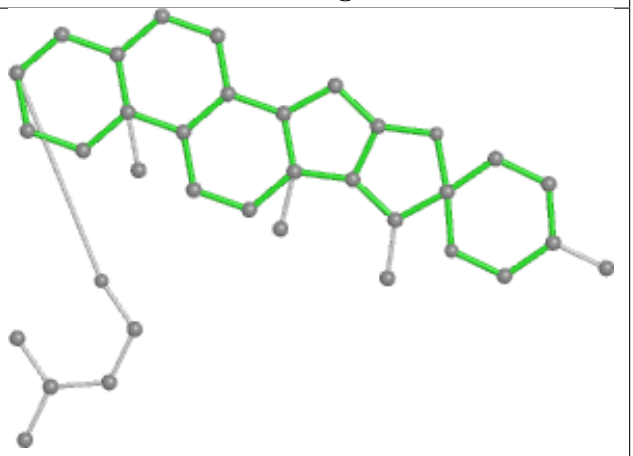
Bond lengths



Bond angles

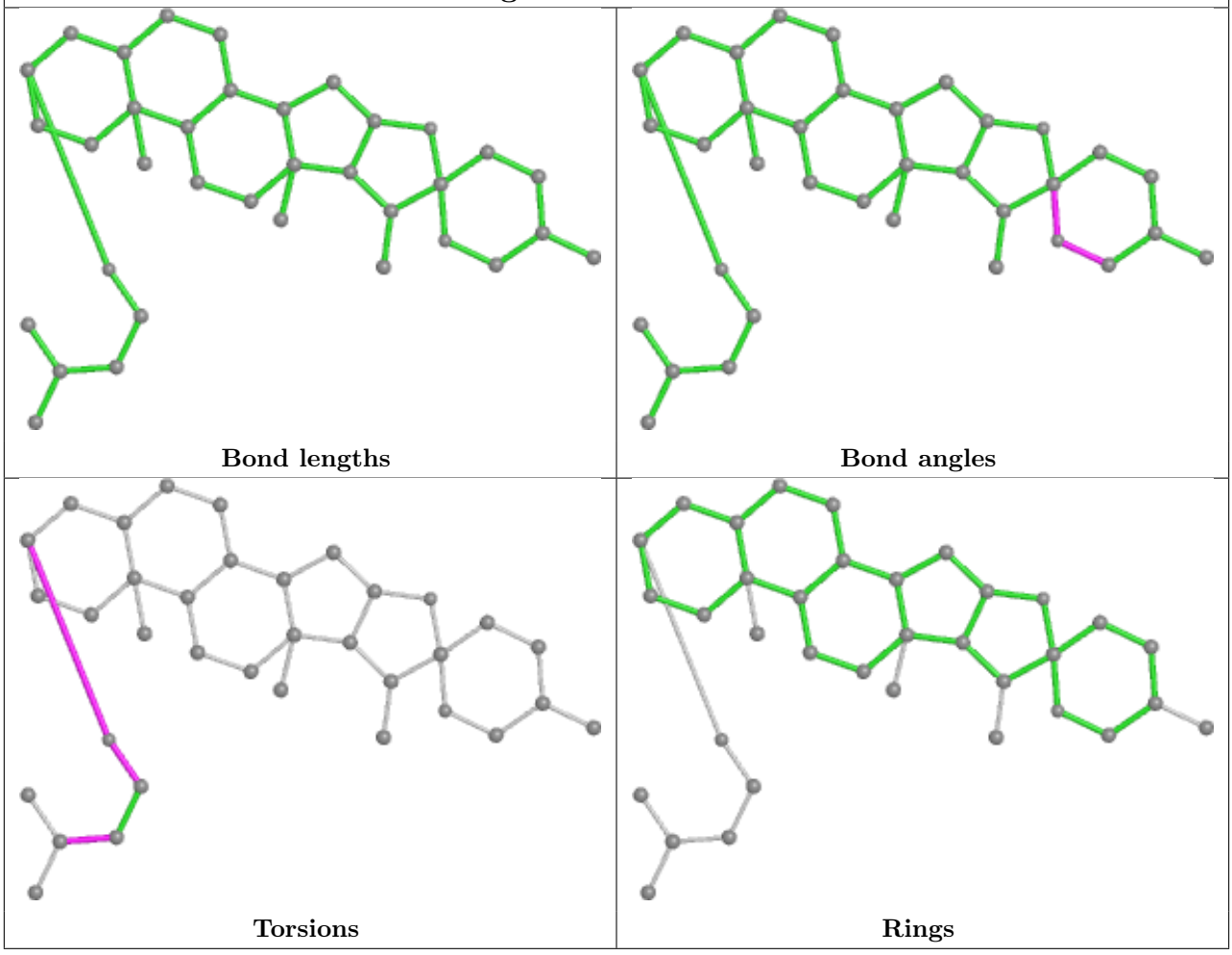


Torsions



Rings

Ligand YJ0 A 1207



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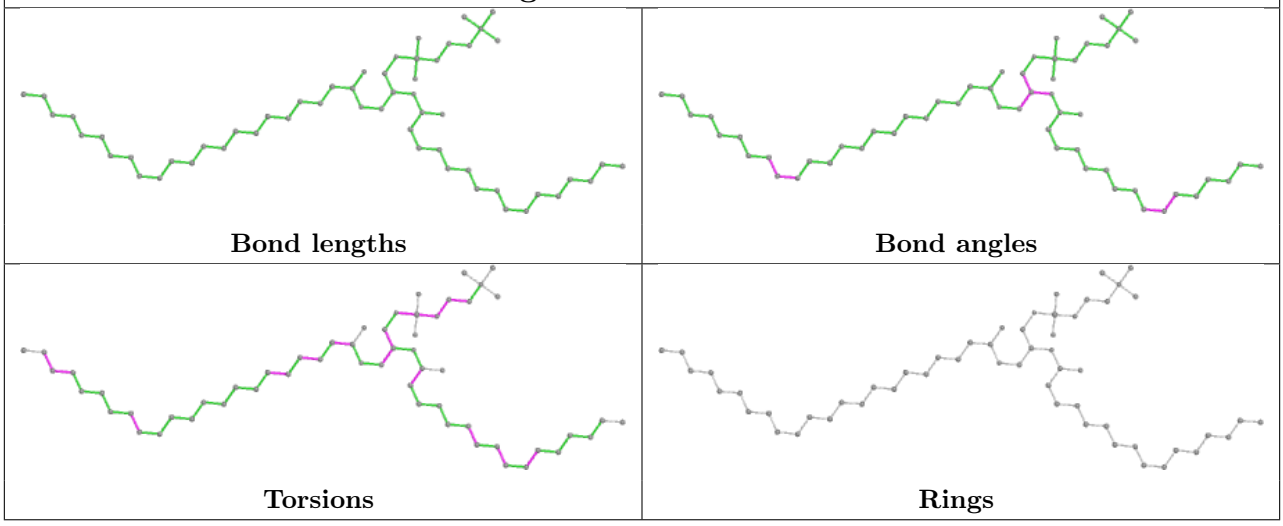

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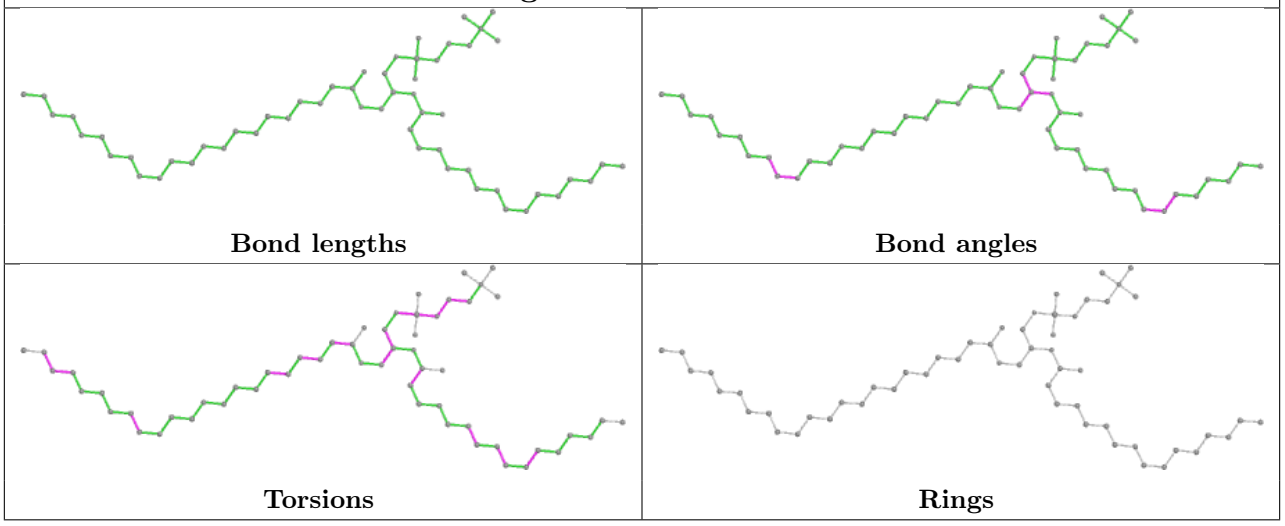

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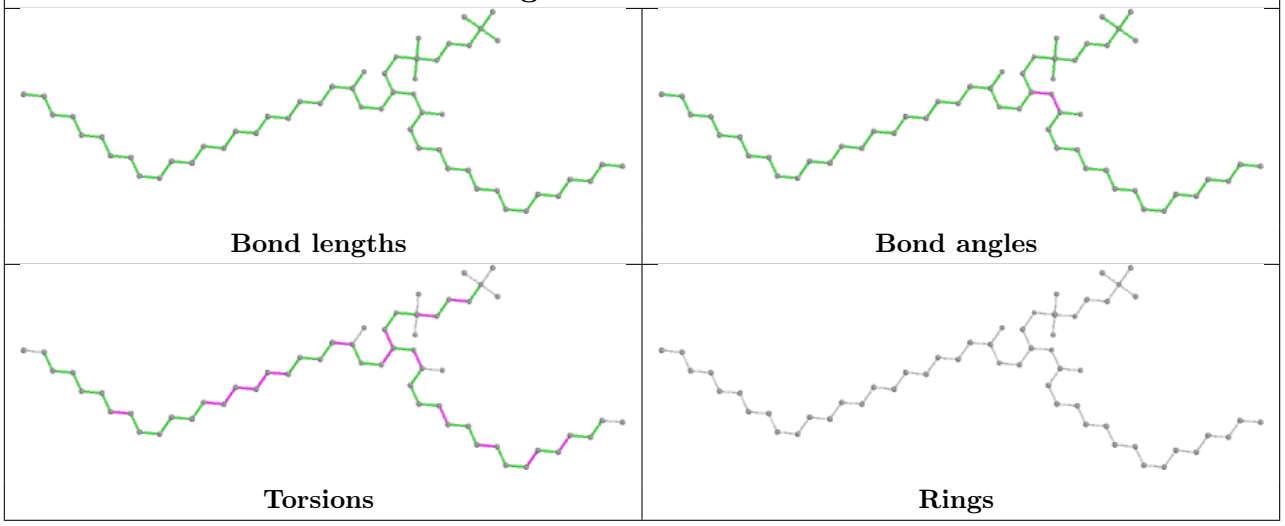

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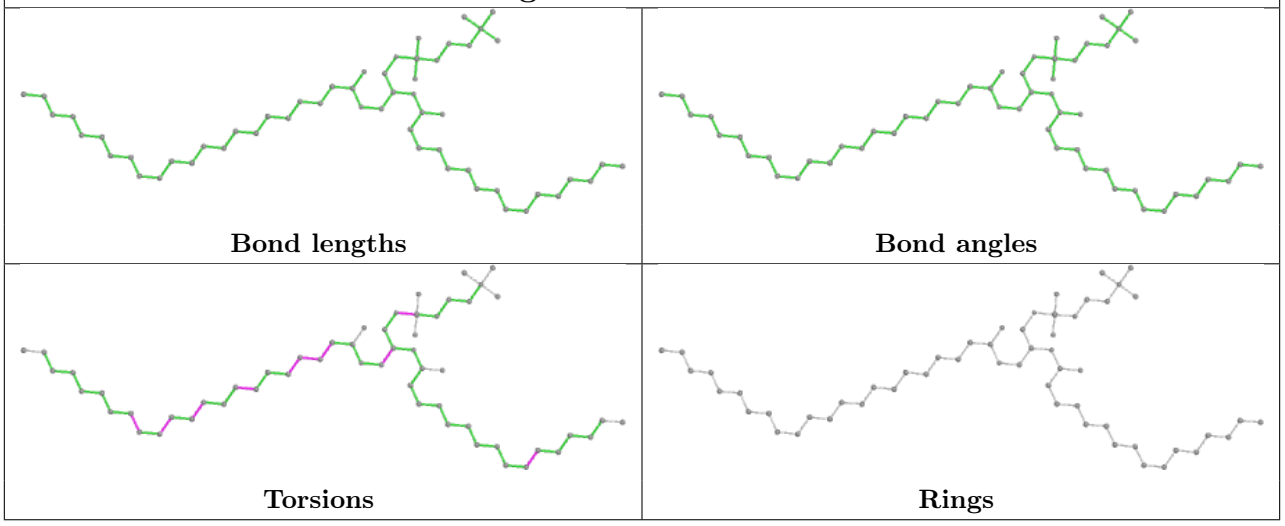

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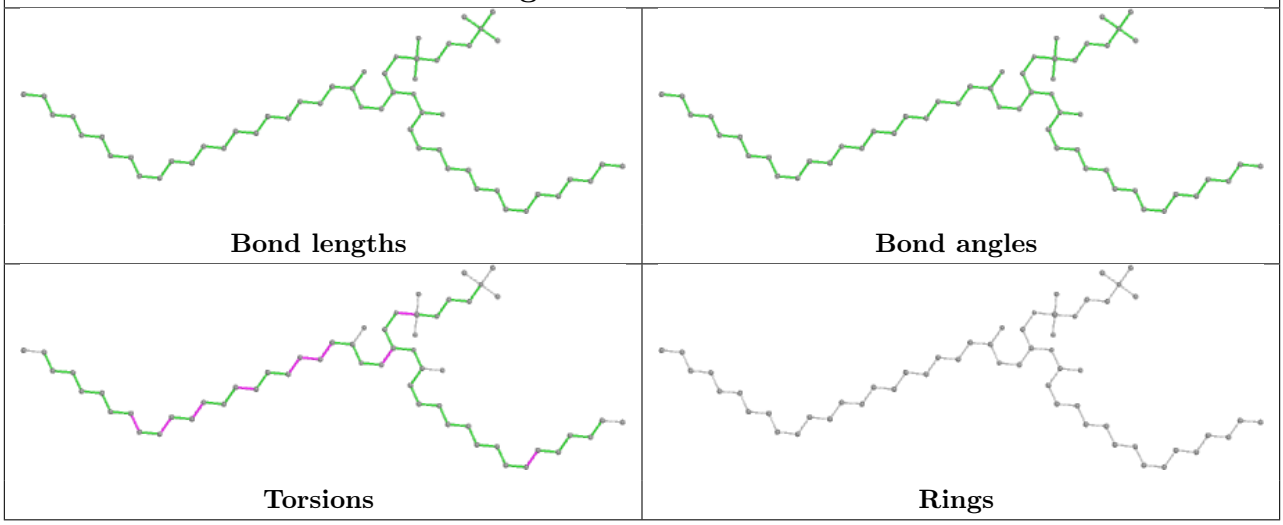

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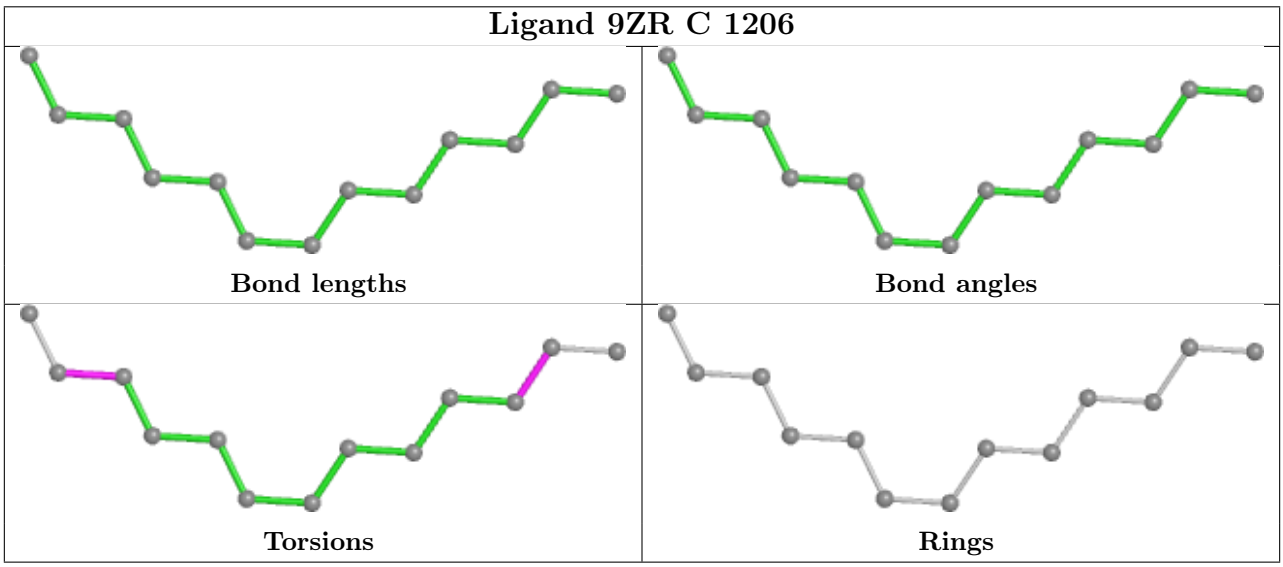

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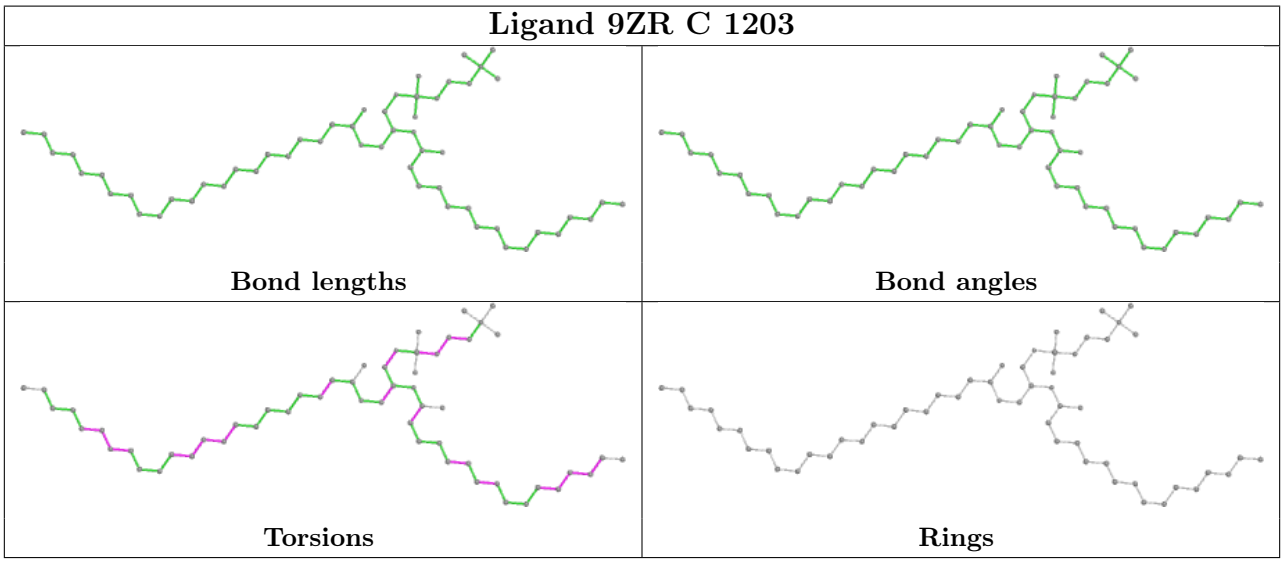

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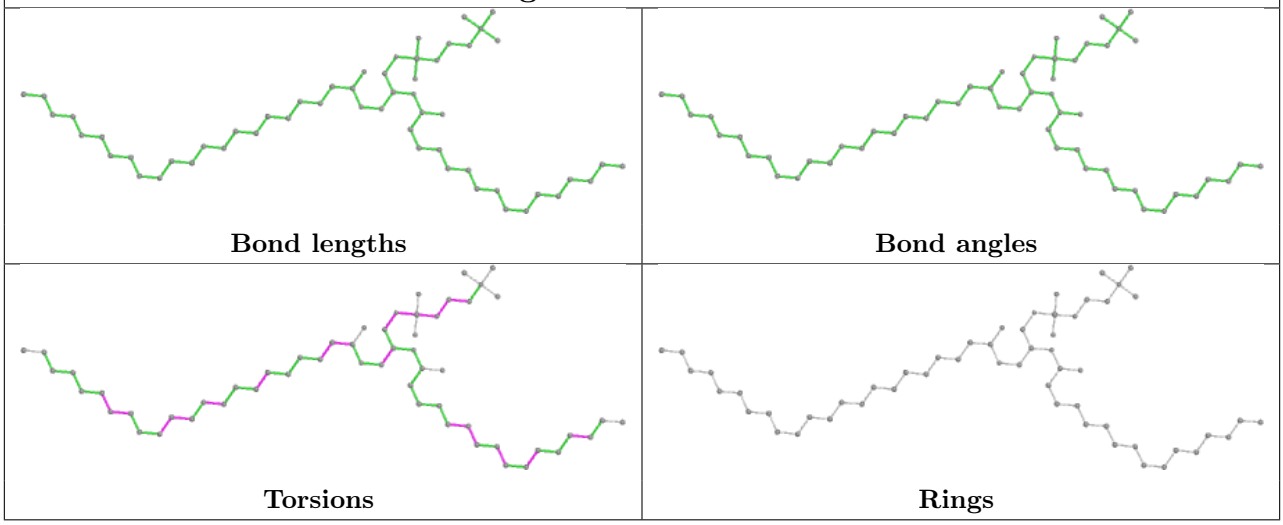

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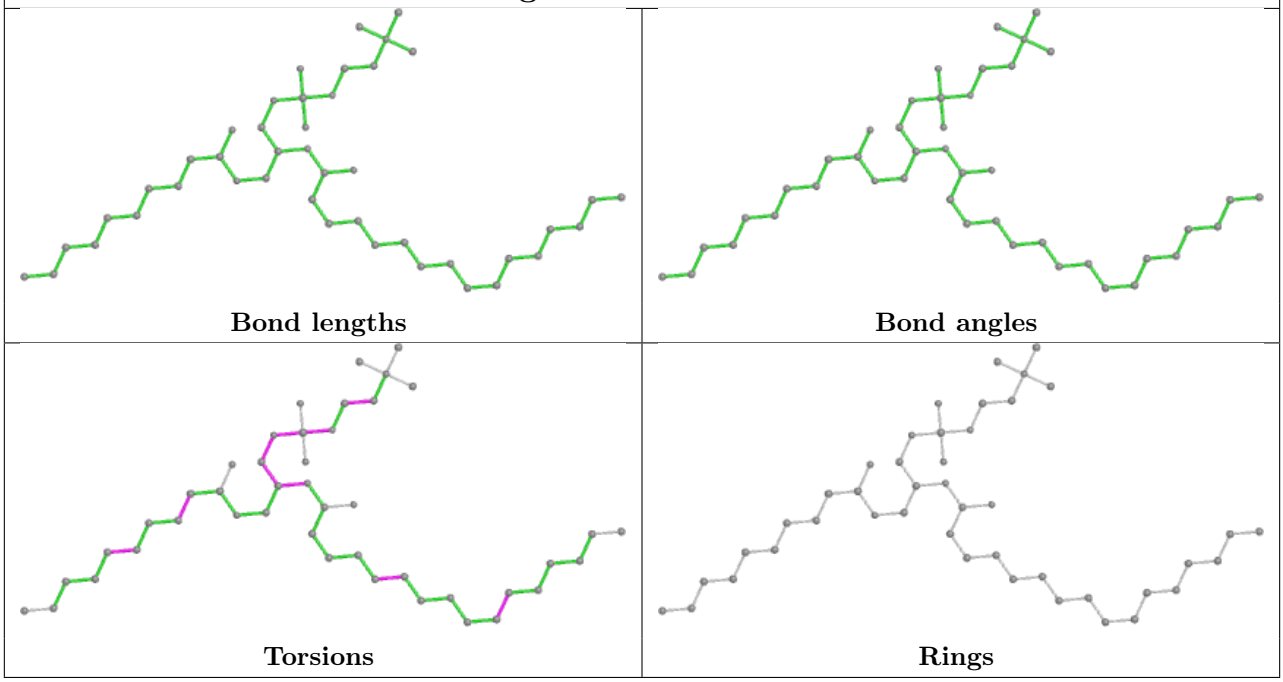
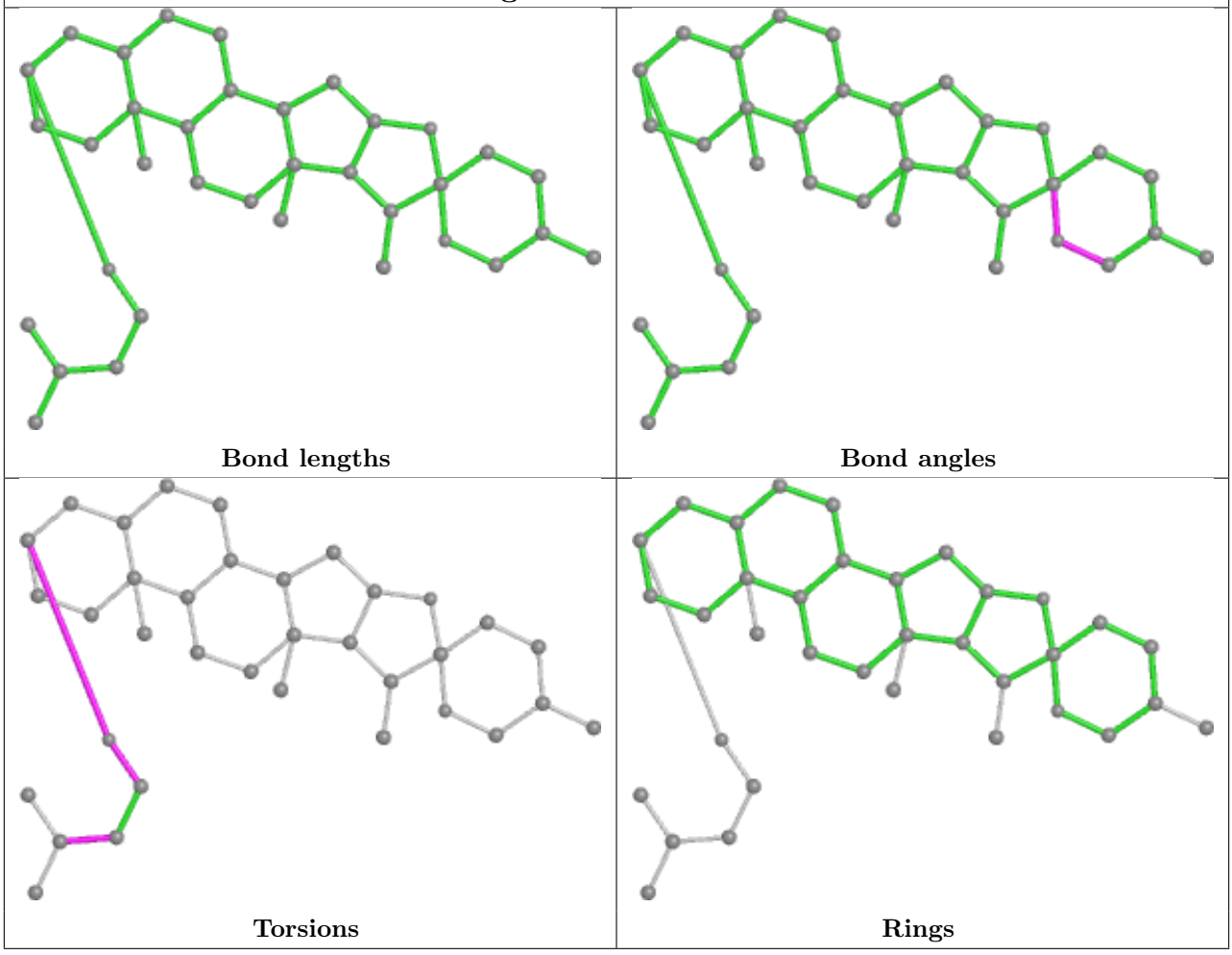
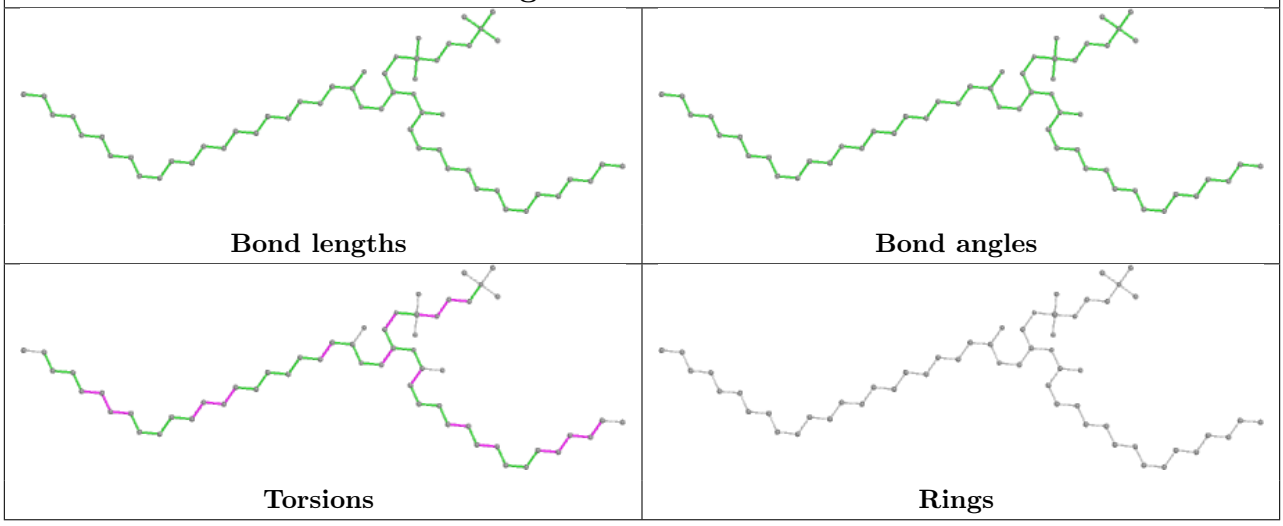


Ligand YJ0 C 1209



Ligand 9ZR A 1201



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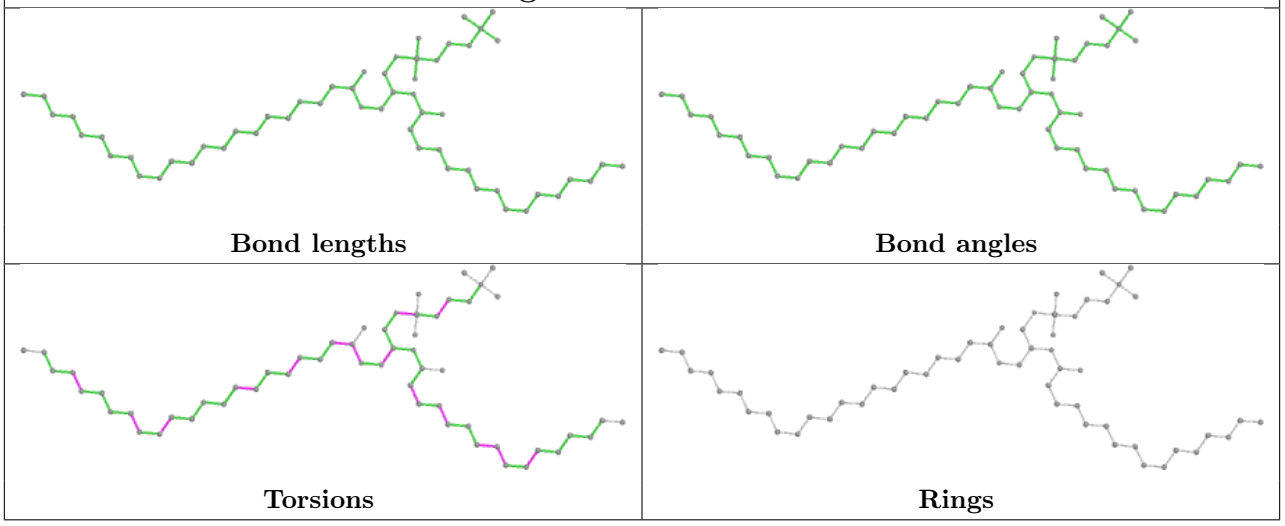

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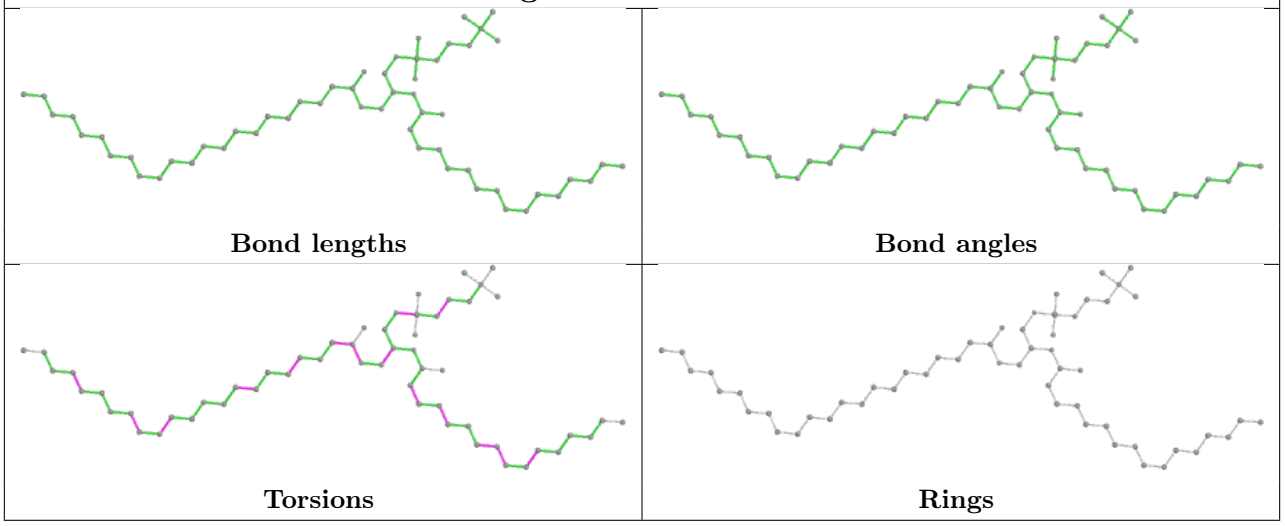

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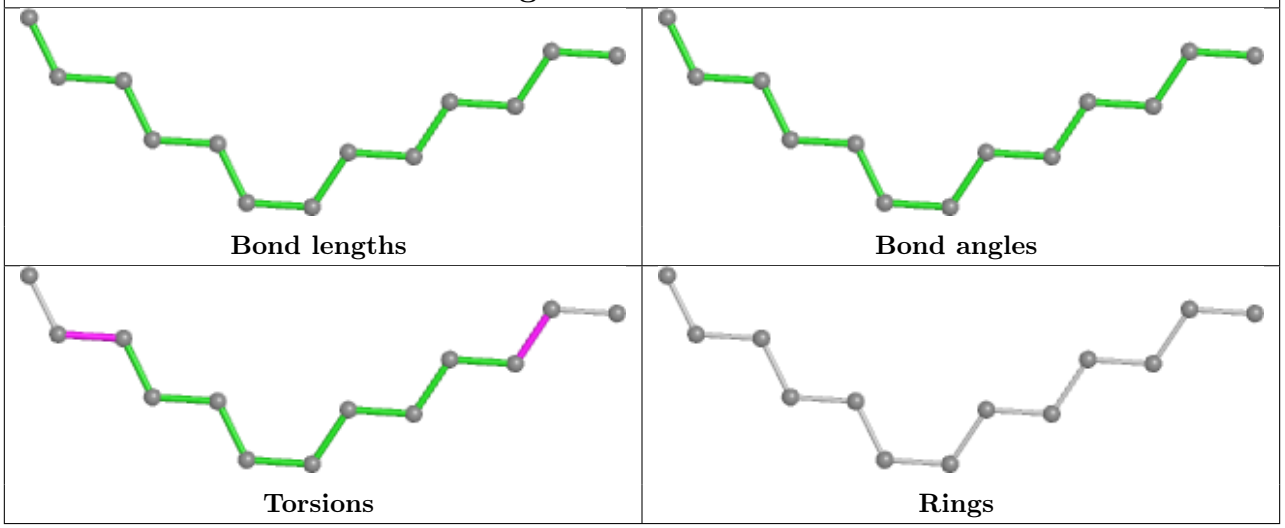

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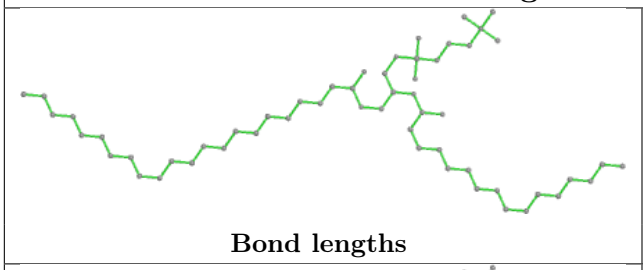

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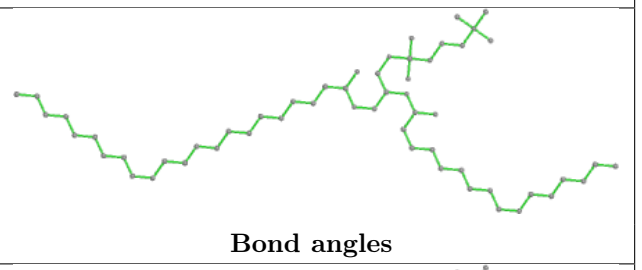
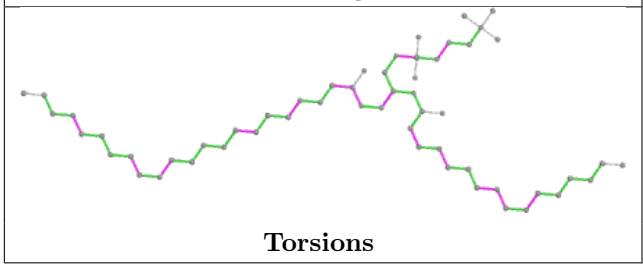
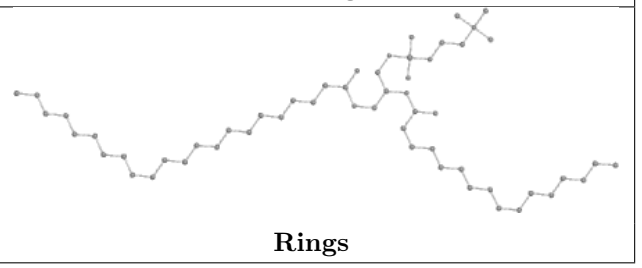


Bond angles

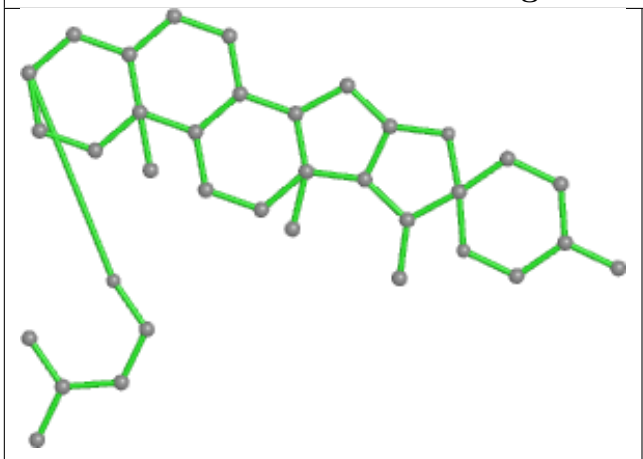


Torsions



Rings

Ligand YJ0 D 1210



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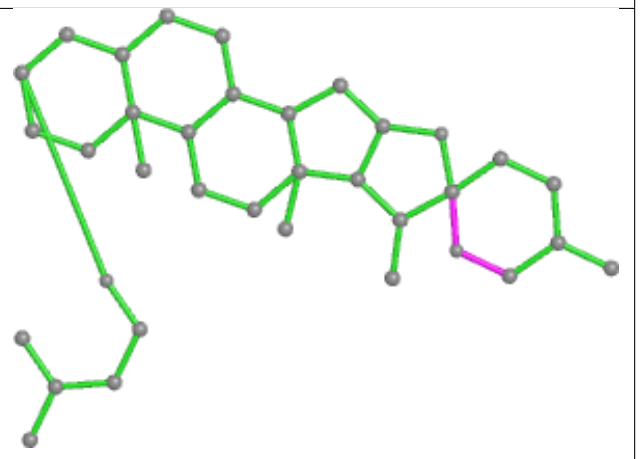
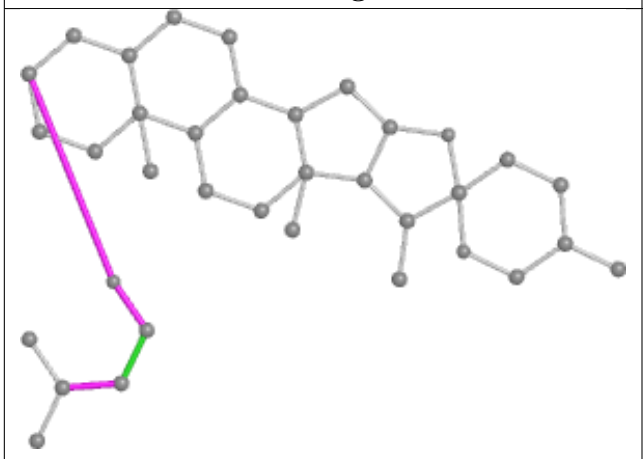


Bond angles



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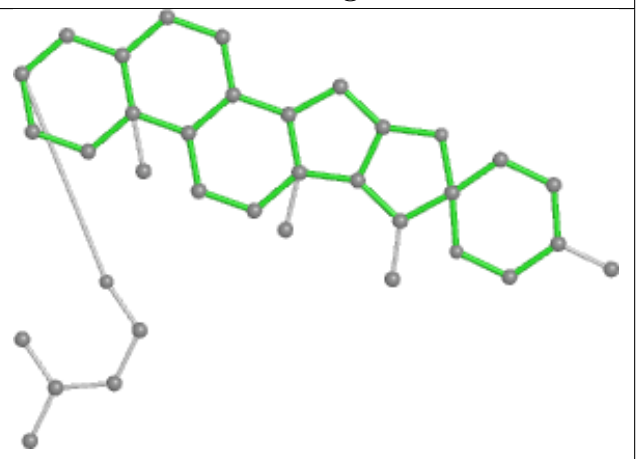
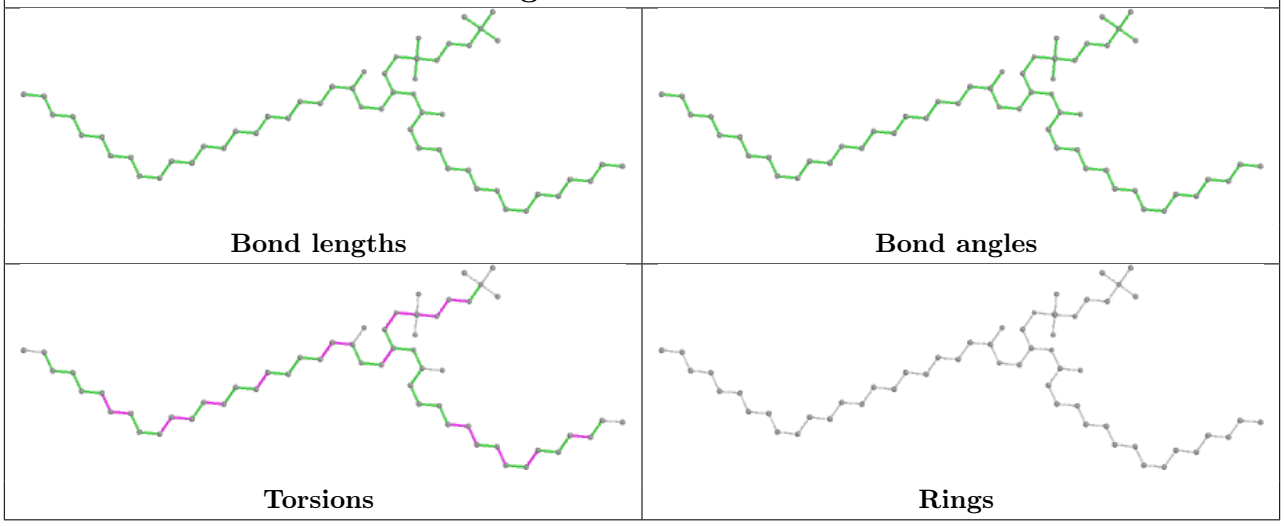
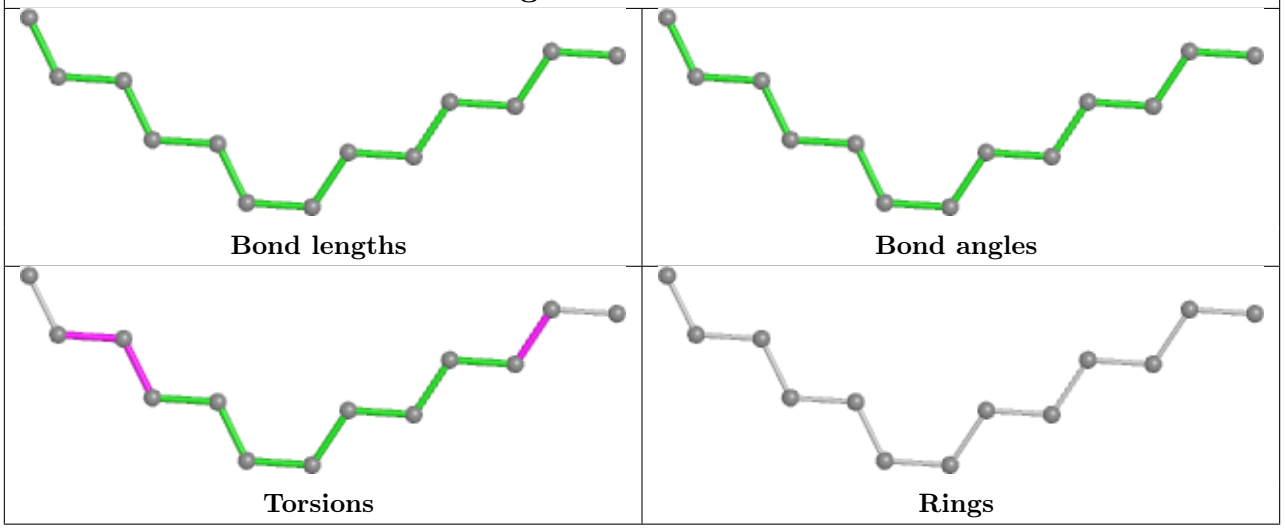


Rings

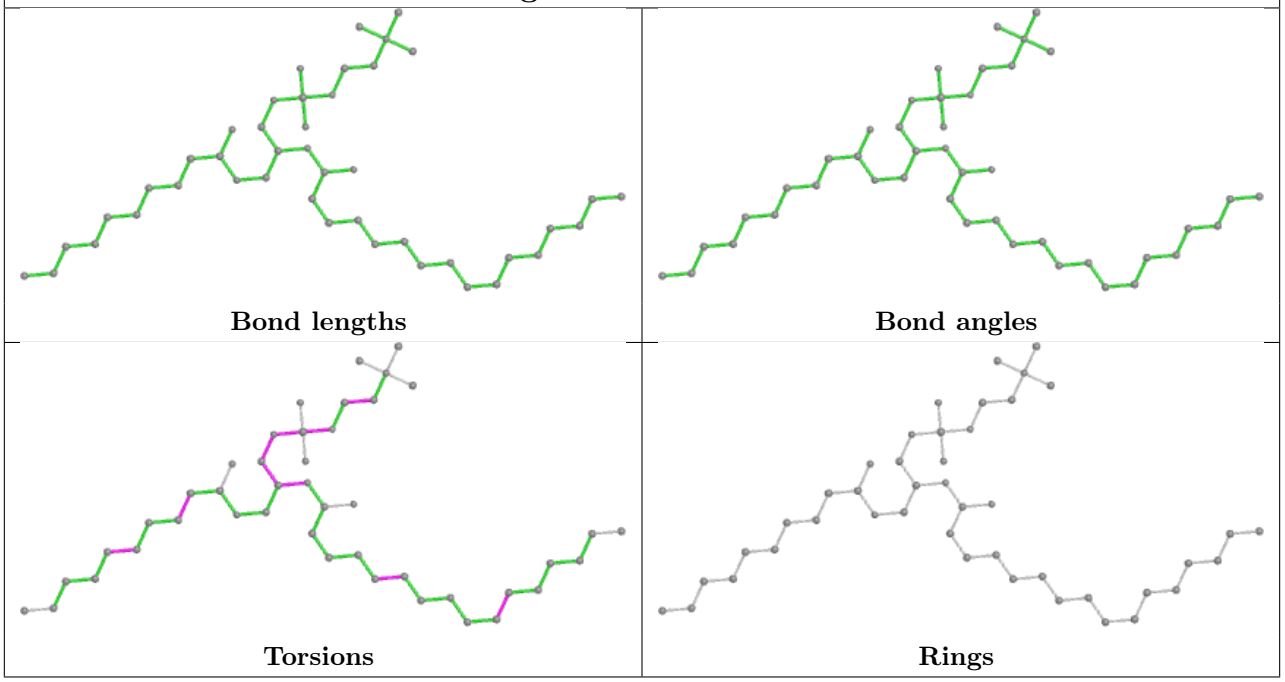
Ligand 9ZR B 1208



Ligand 9ZR B 1206



Ligand 9ZR B 1205



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.

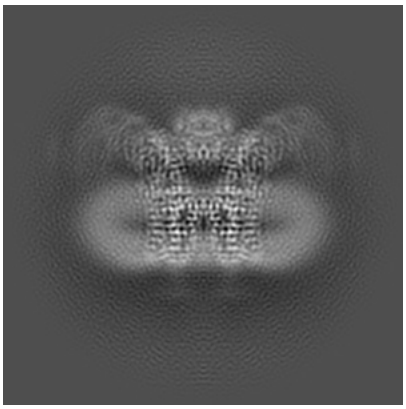
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-40961. These allow visual inspection of the internal detail of the map and identification of artifacts.

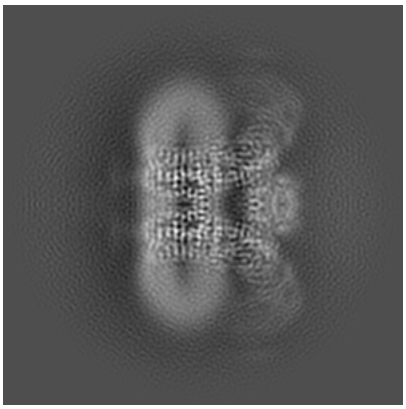
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

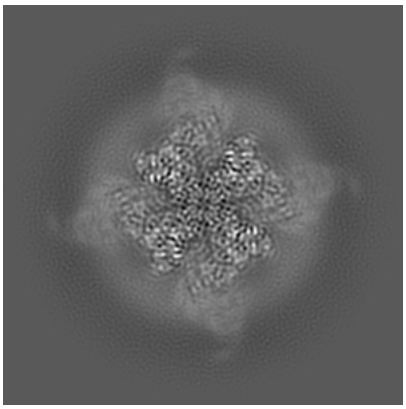
6.1.1 Primary map



X

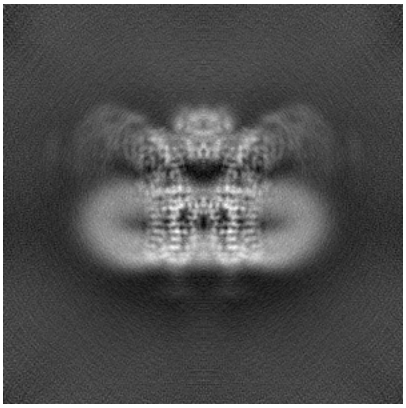


Y

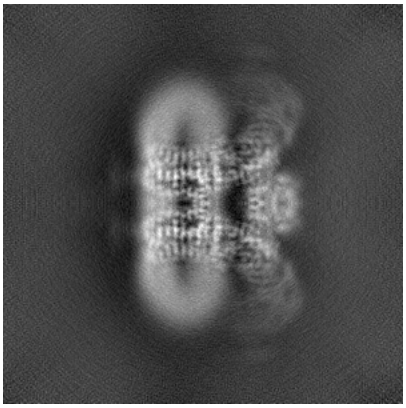


Z

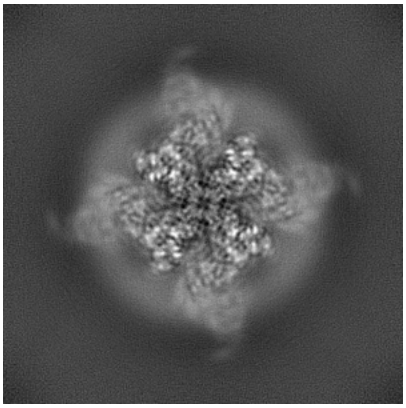
6.1.2 Raw map



X



Y

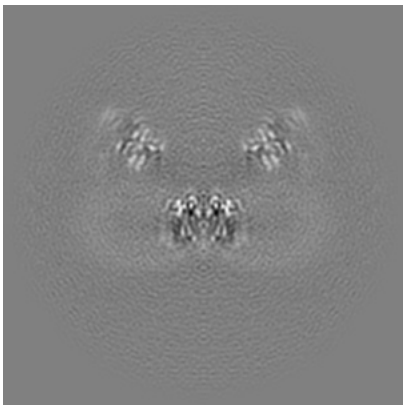


Z

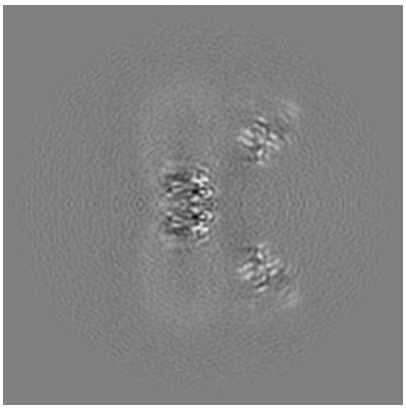
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

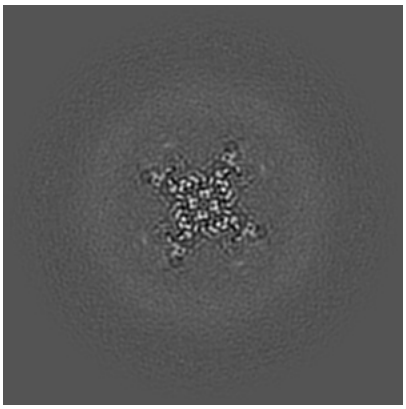
6.2.1 Primary map



X Index: 160

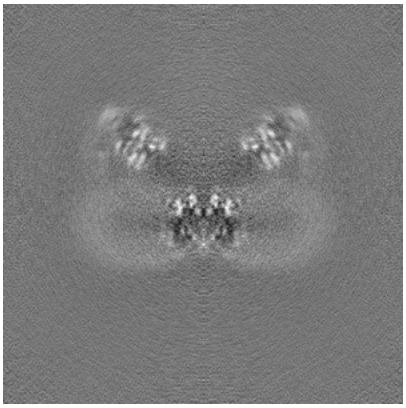


Y Index: 160

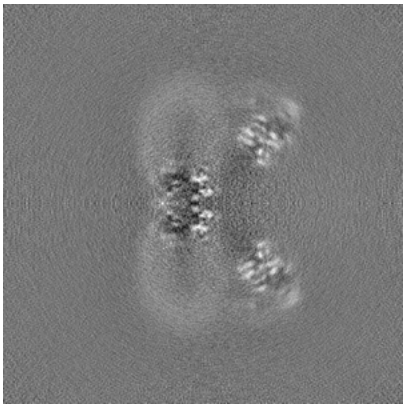


Z Index: 160

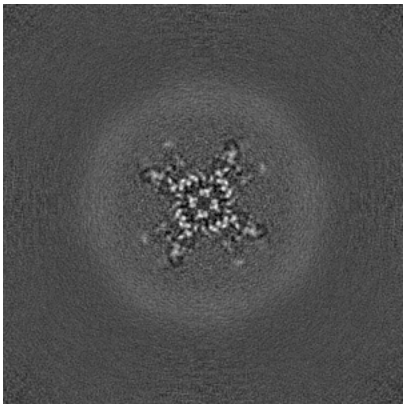
6.2.2 Raw map



X Index: 160



Y Index: 160

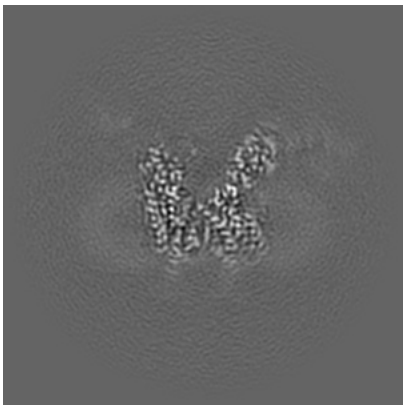


Z Index: 160

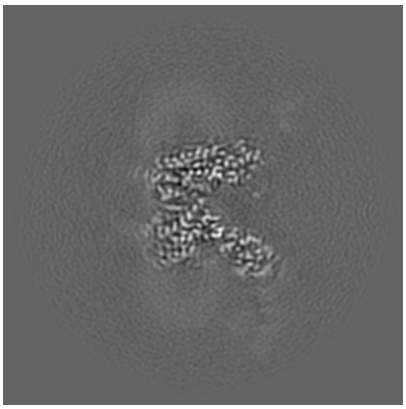
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

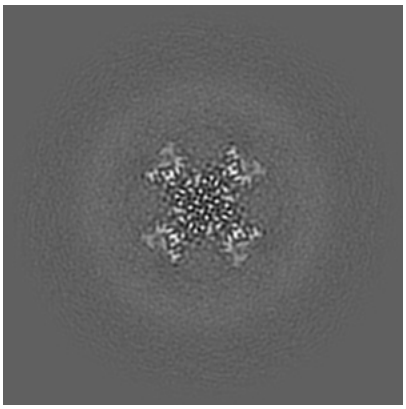
6.3.1 Primary map



X Index: 136

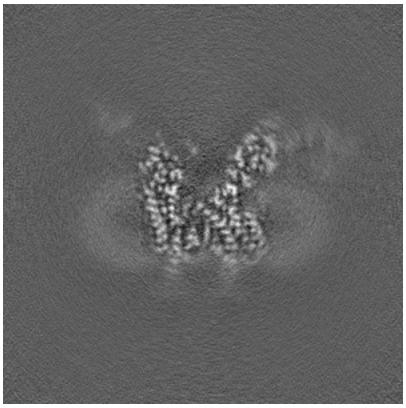


Y Index: 136

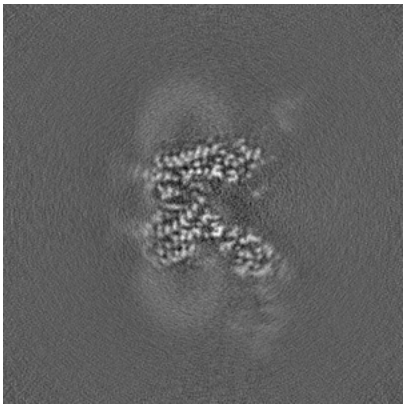


Z Index: 156

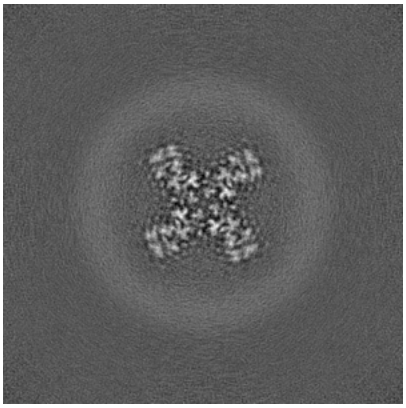
6.3.2 Raw map



X Index: 136



Y Index: 136

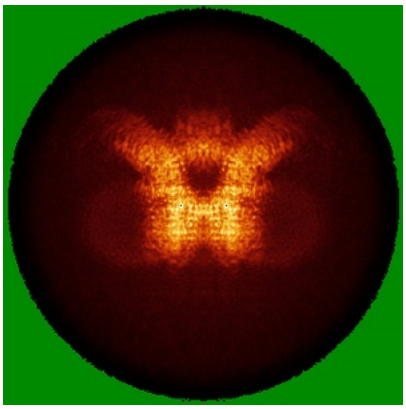


Z Index: 138

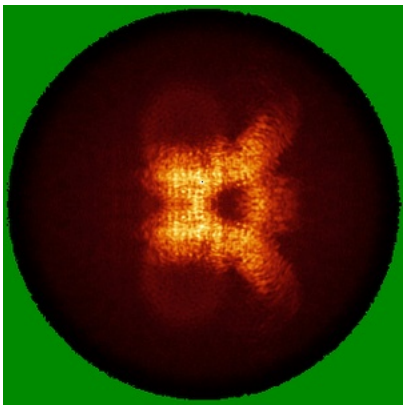
The images above show the largest variance slices of the map in three orthogonal directions.

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

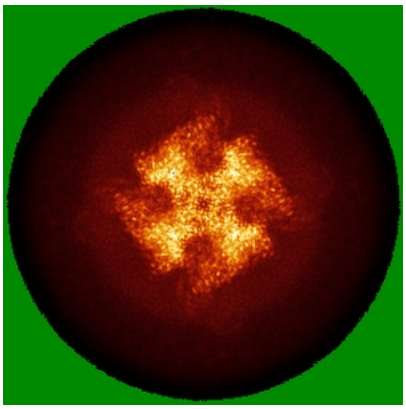
6.4.1 Primary map



X

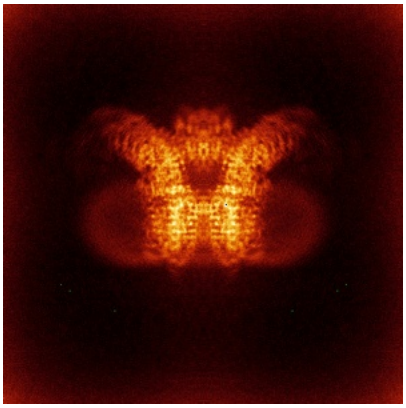


Y

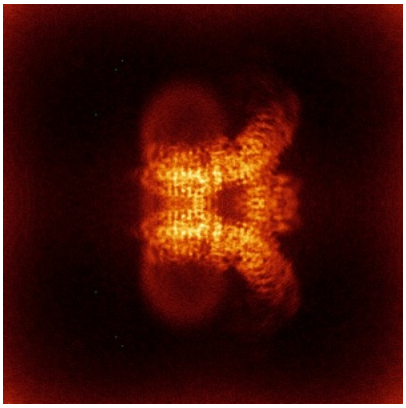


Z

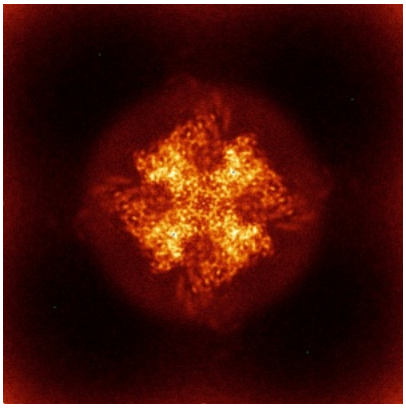
6.4.2 Raw map



X



Y

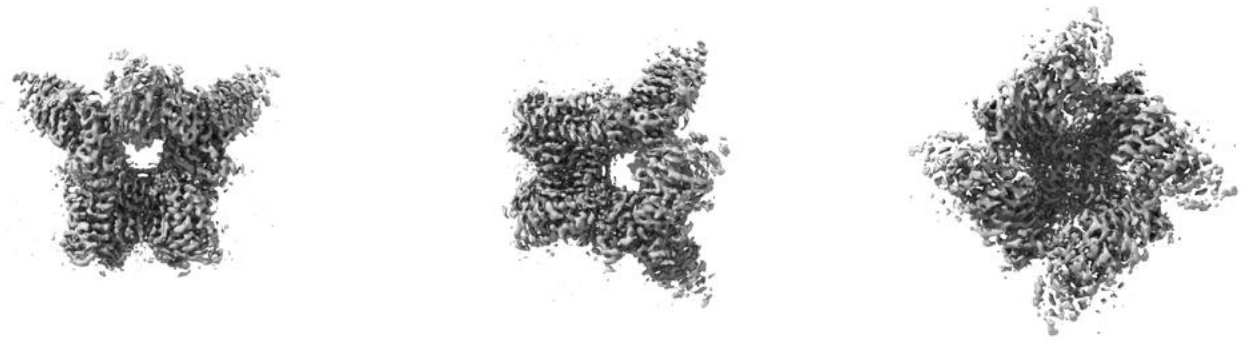


Z

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

6.5 Orthogonal surface views (i)

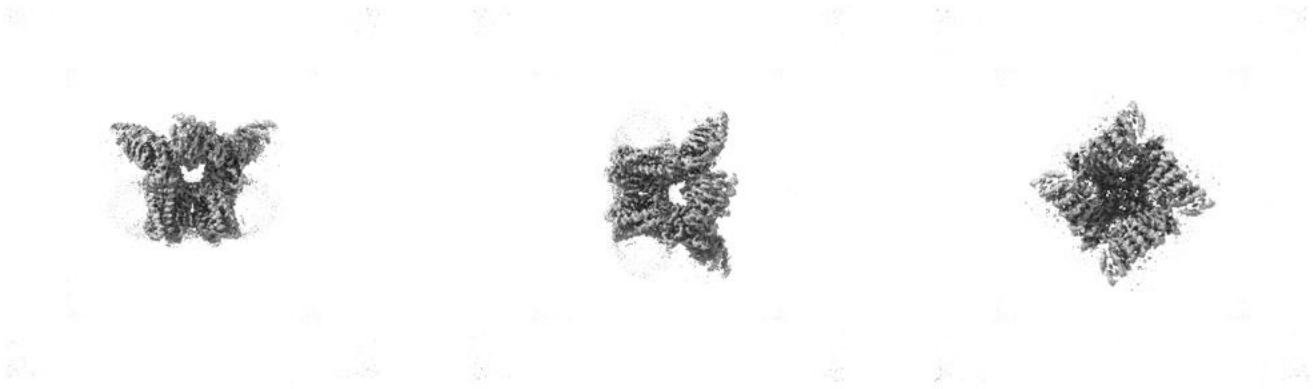
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.065. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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.

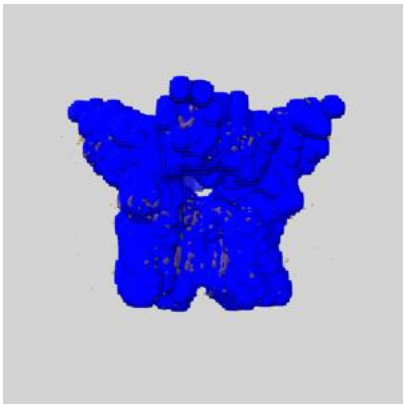
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

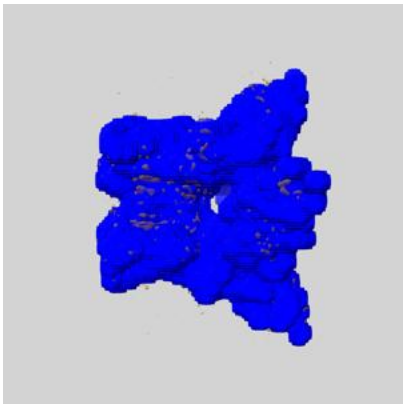
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

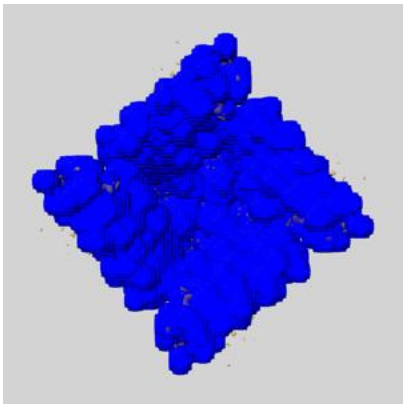
6.6.1 emd_40961_msk_1.map (i)



X



Y

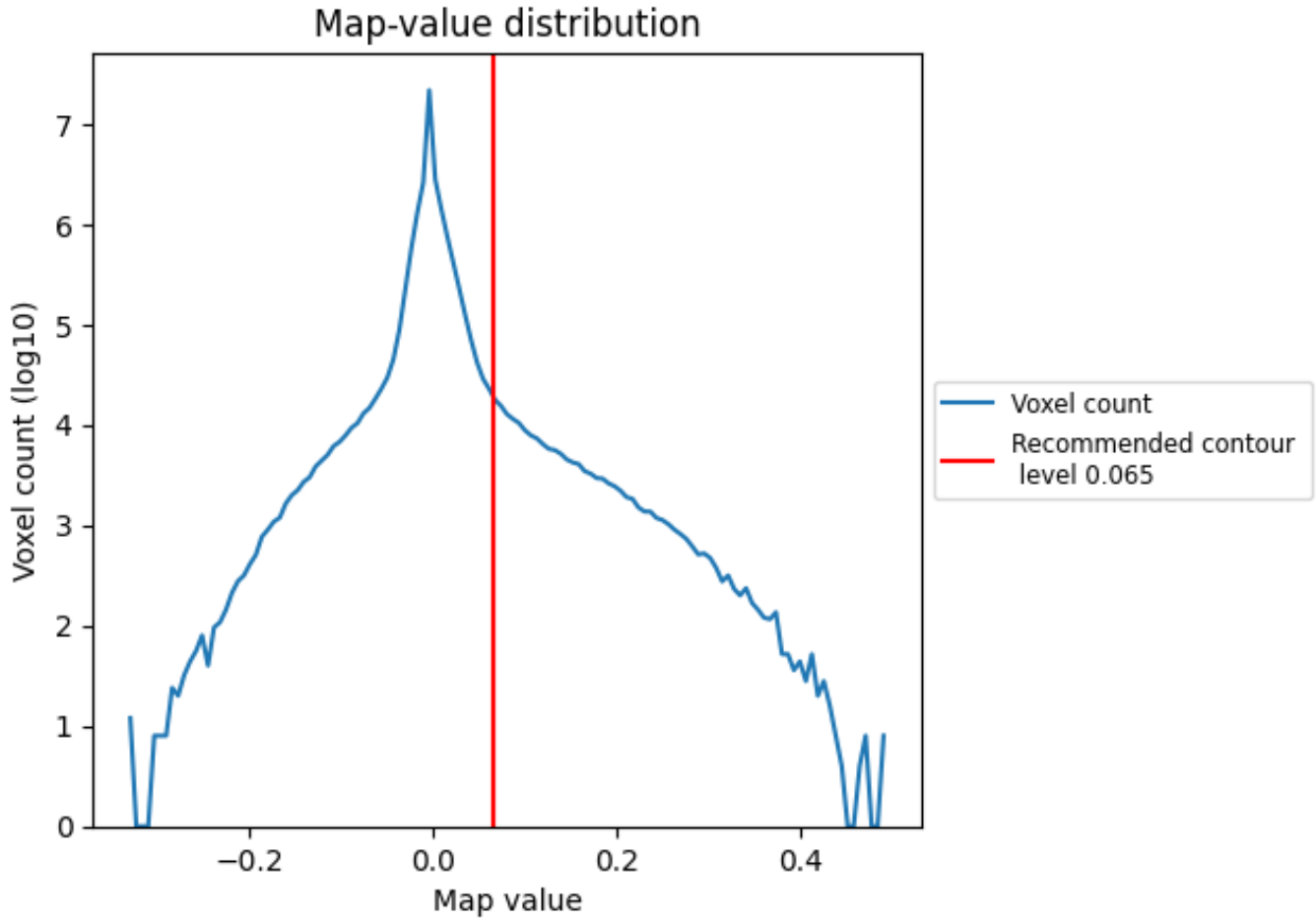


Z

7 Map analysis

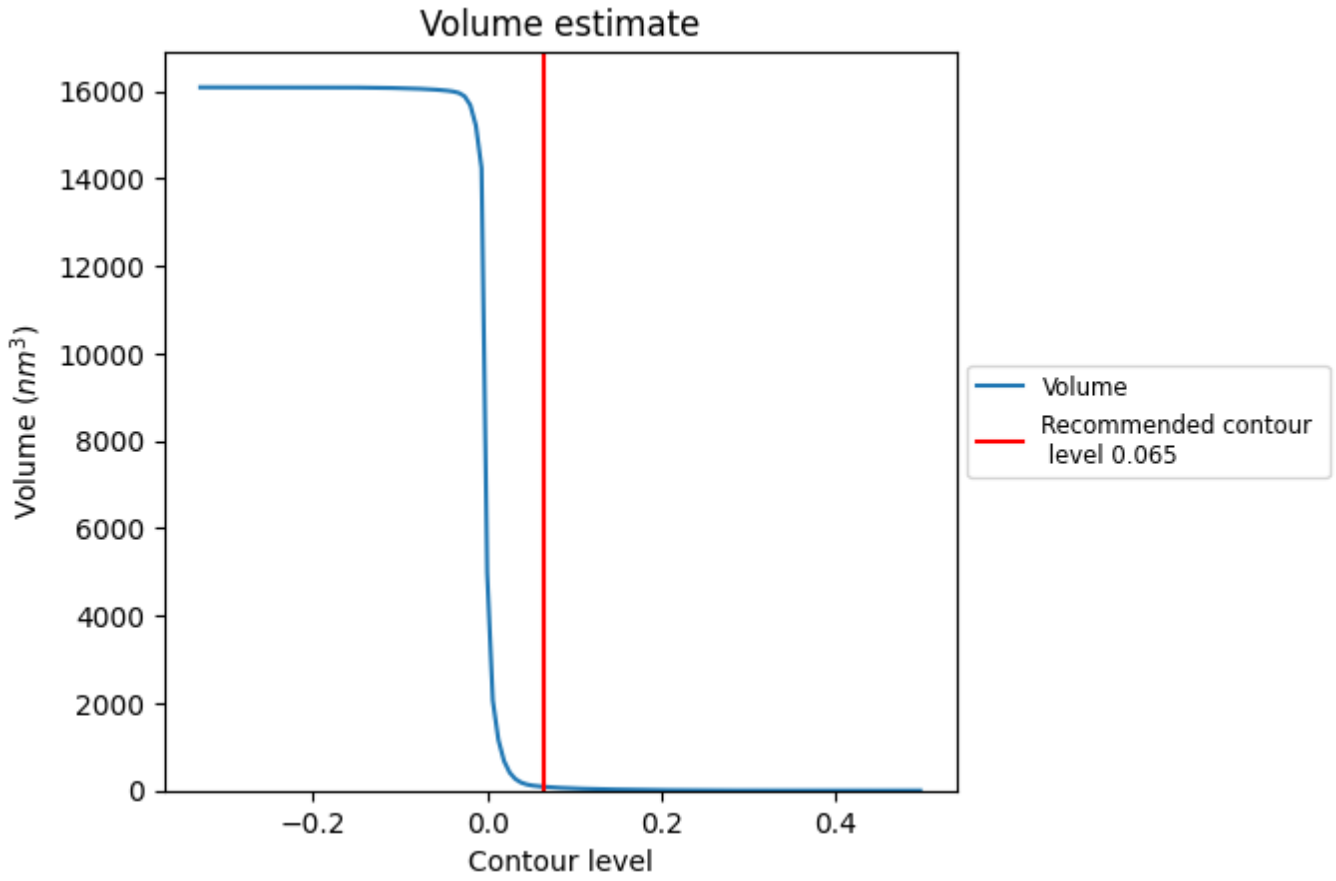
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

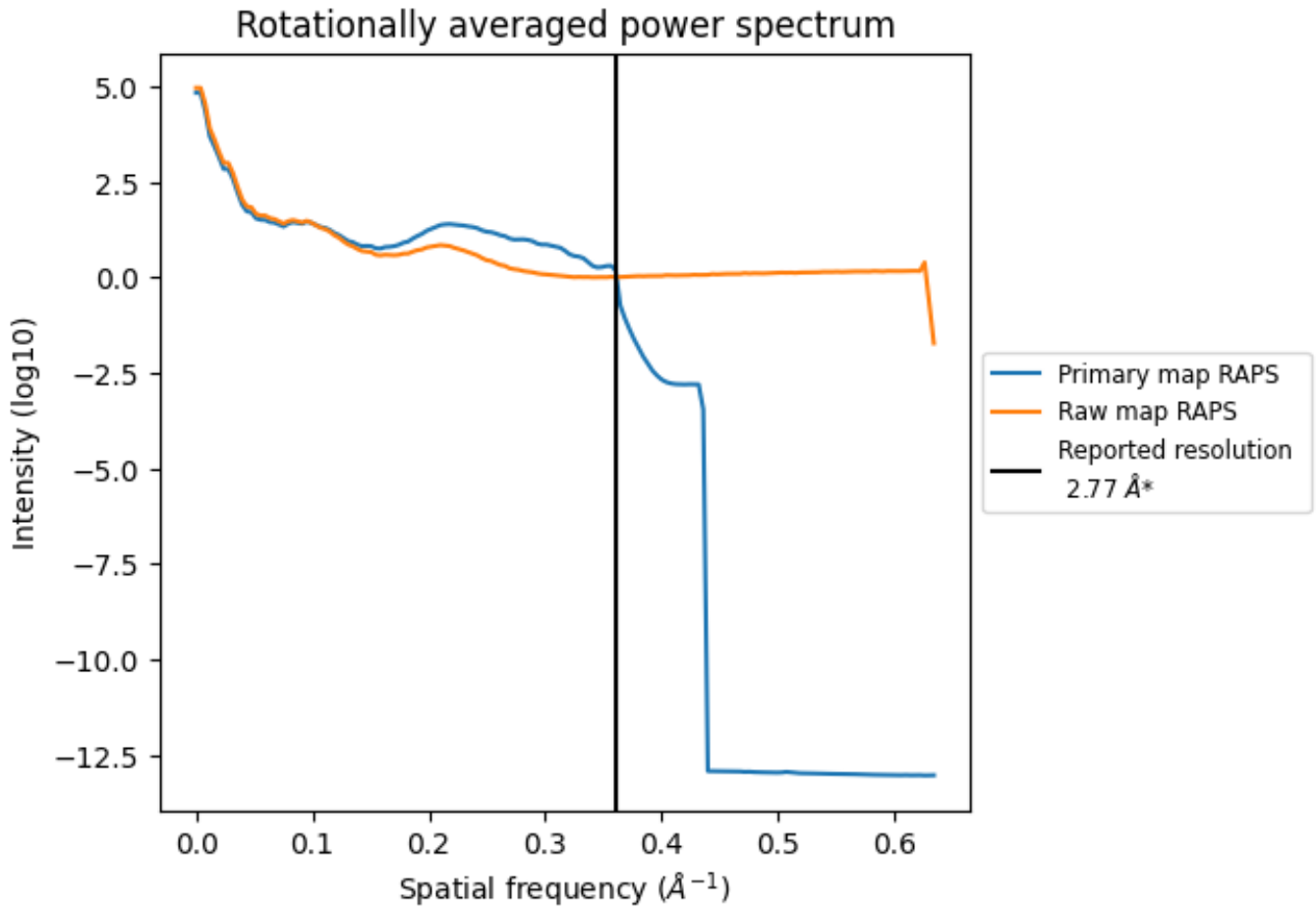
7.2 Volume estimate



The volume at the recommended contour level is 86 nm^3; this corresponds to an approximate mass of 78 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)

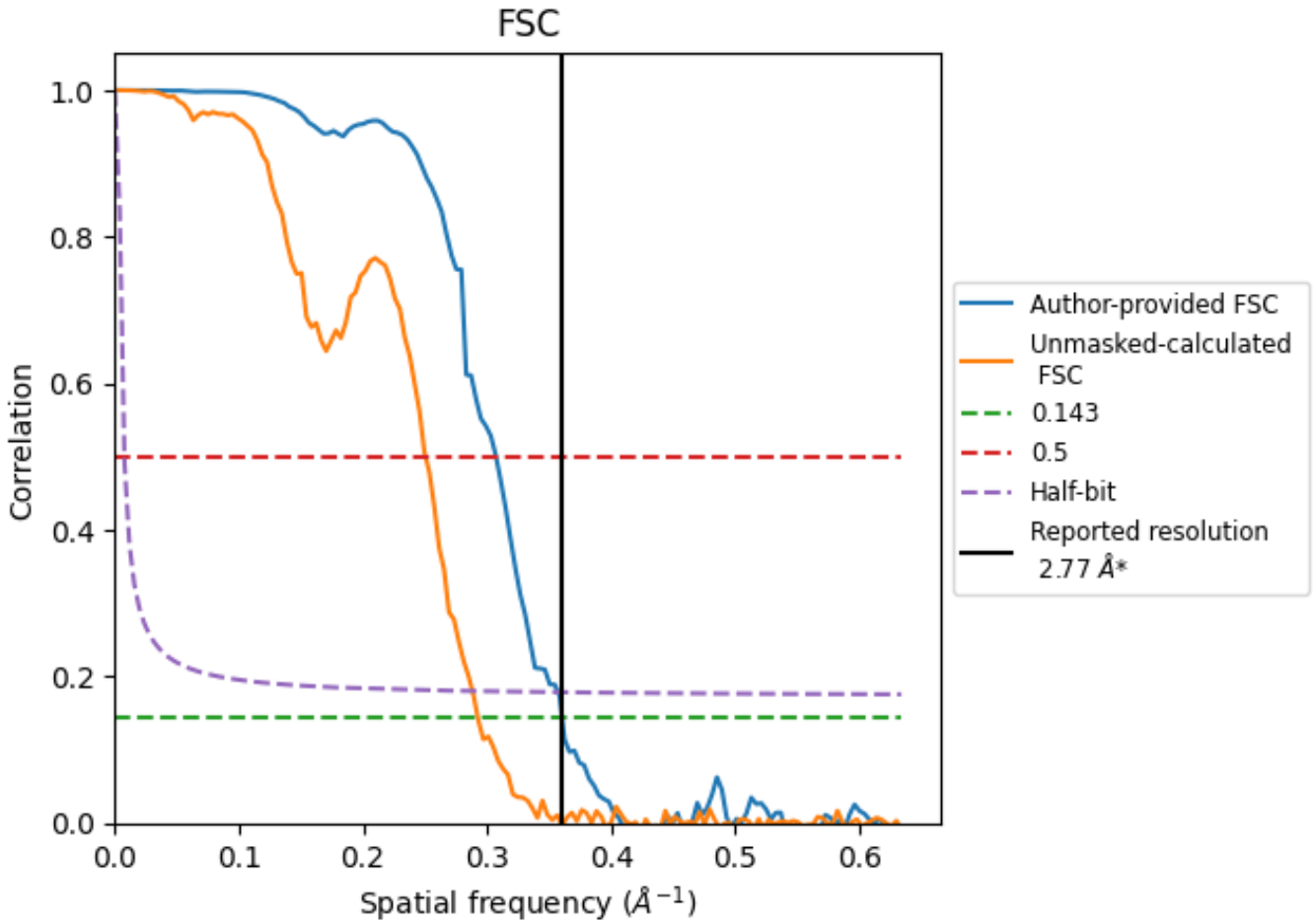


*Reported resolution corresponds to spatial frequency of 0.361 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.361 Å^{-1}

8.2 Resolution estimates (i)

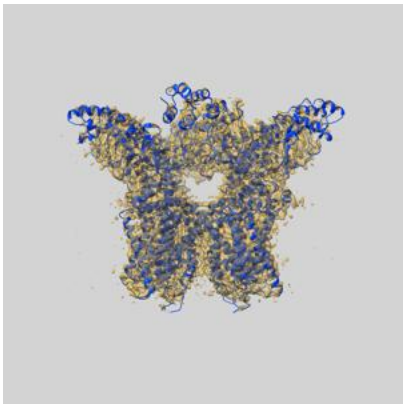
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.77	-	-
Author-provided FSC curve	2.77	3.25	2.80
Unmasked-calculated*	3.42	3.99	3.47

*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 3.42 differs from the reported value 2.77 by more than 10 %

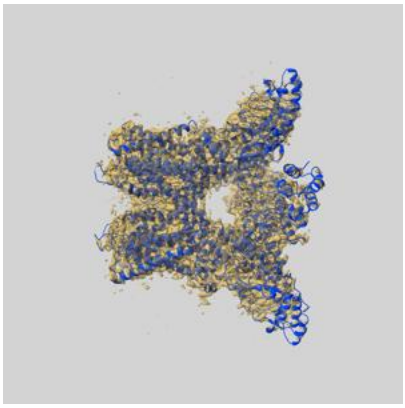
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-40961 and PDB model 8T1E. Per-residue inclusion information can be found in section 3 on page 10.

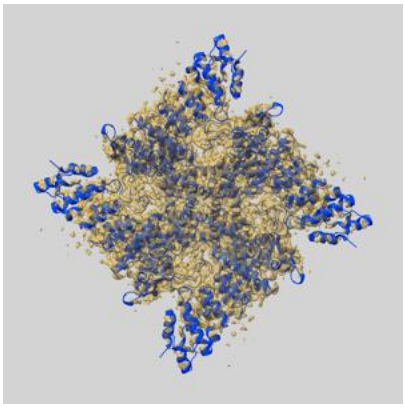
9.1 Map-model overlay



X



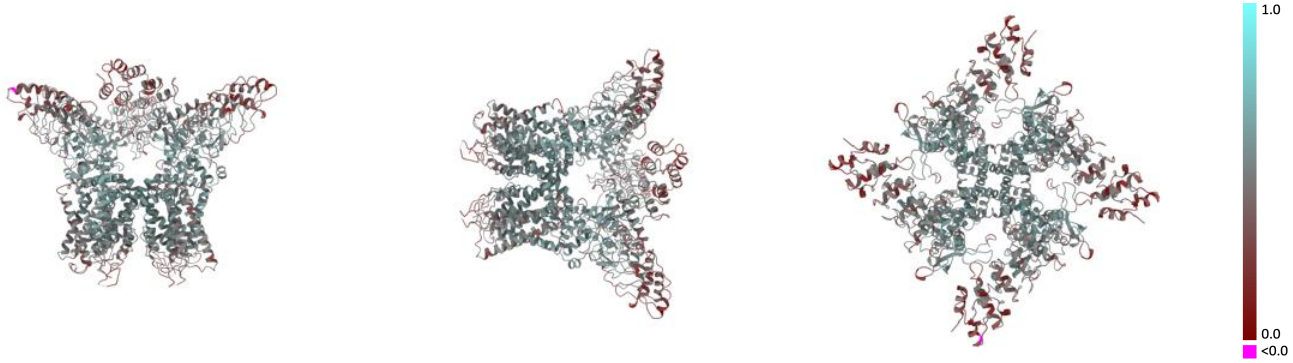
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.065 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

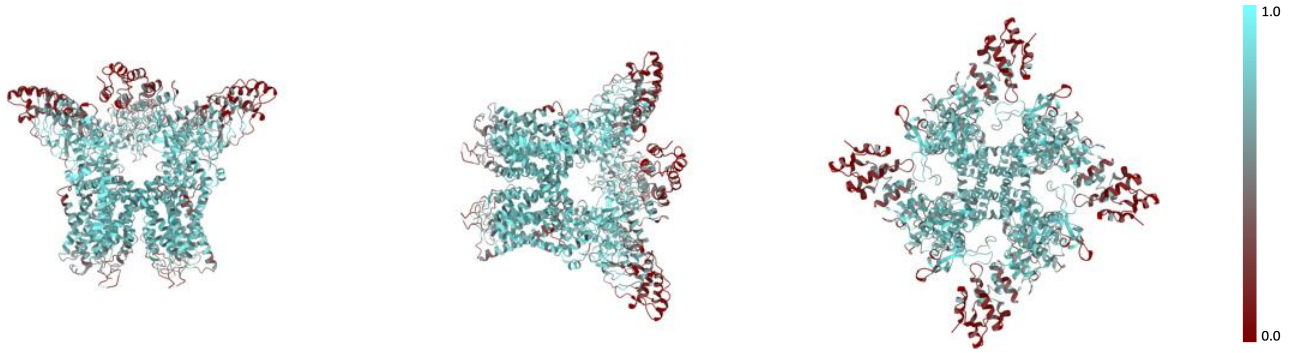
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

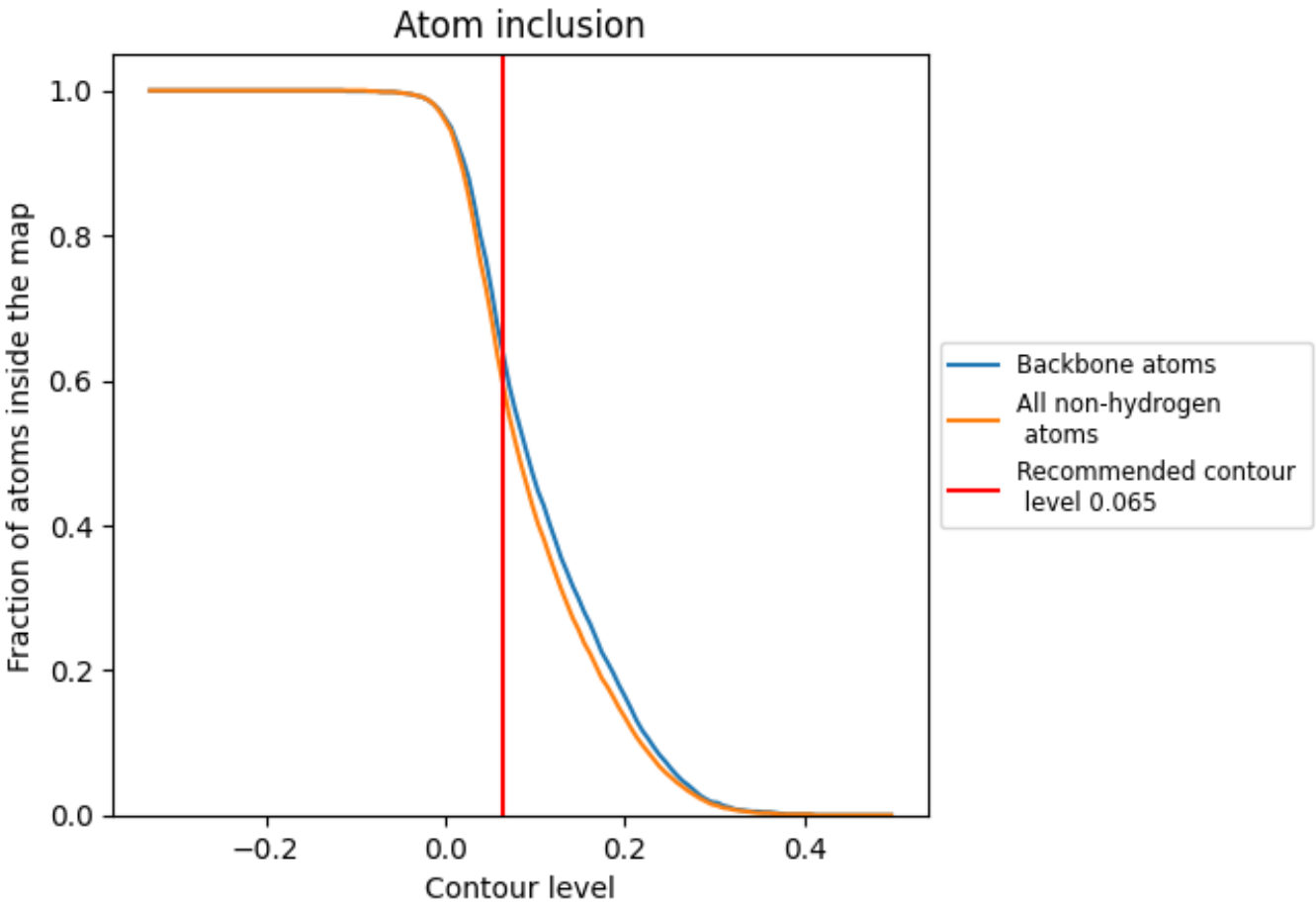
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.065).

9.4 Atom inclusion (i)



At the recommended contour level, 63% of all backbone atoms, 59% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.065) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5900	0.4650
A	0.5950	0.4640
B	0.5960	0.4640
C	0.5950	0.4650
D	0.5960	0.4650