Full wwPDB EM Validation Report ⓘ

Mar 26, 2025 – 03:02 PM JST

PDB ID	:	9INH
EMDB ID	:	EMD-60707
Title	:	Cryo-EM structure of human XPR1 in complex with InsP6 in outward-facing state (SPX visible)-in the presence of KIDINS220-1-432 and 10 mM KH2PO4
Authors	:	Zuo, P.; Liang, L.; Yin, Y.
Deposited on	:	2024-07-06
Resolution	:	3.68 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:

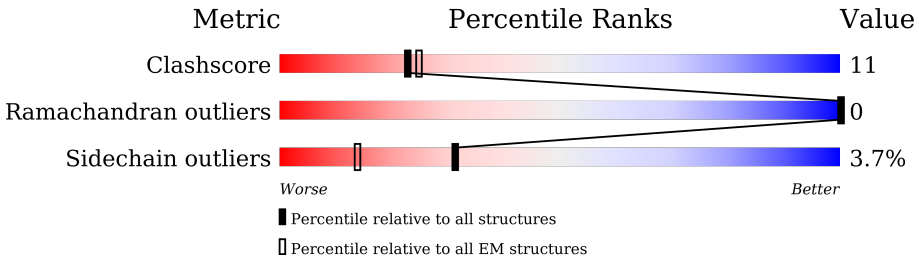
EMDB validation analysis	:	0.0.1.dev117
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.2

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 3.68 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	704	17% 61% 24% . 14%
1	D	704	17% 63% 23% . 13%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 10933 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.

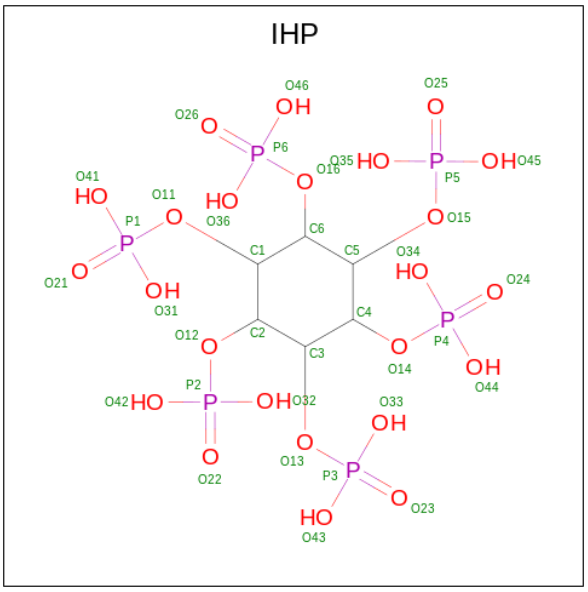
- Molecule 1 is a protein called Solute carrier family 53 member 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	606	Total	C	N	O	S	0	0
			5030	3312	829	868	21		
1	D	609	Total	C	N	O	S	0	0
			5059	3332	835	871	21		

There are 16 discrepancies between the modelled and reference sequences:

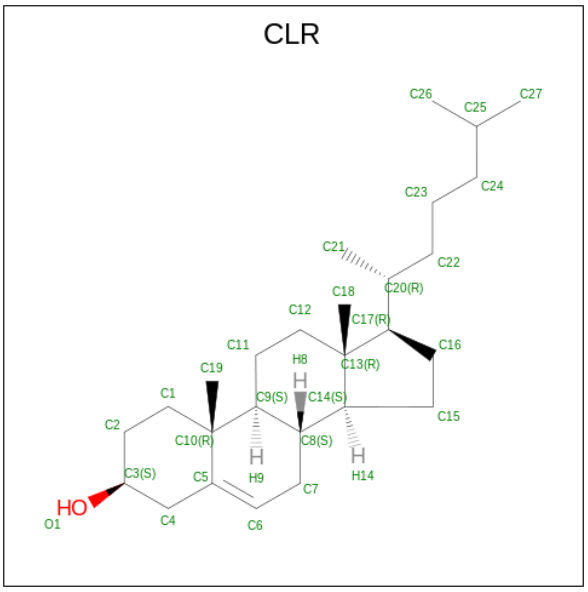
Chain	Residue	Modelled	Actual	Comment	Reference
A	697	SER	-	expression tag	UNP Q9UBH6
A	698	ARG	-	expression tag	UNP Q9UBH6
A	699	GLU	-	expression tag	UNP Q9UBH6
A	700	ASN	-	expression tag	UNP Q9UBH6
A	701	LEU	-	expression tag	UNP Q9UBH6
A	702	TYR	-	expression tag	UNP Q9UBH6
A	703	PHE	-	expression tag	UNP Q9UBH6
A	704	GLN	-	expression tag	UNP Q9UBH6
D	697	SER	-	expression tag	UNP Q9UBH6
D	698	ARG	-	expression tag	UNP Q9UBH6
D	699	GLU	-	expression tag	UNP Q9UBH6
D	700	ASN	-	expression tag	UNP Q9UBH6
D	701	LEU	-	expression tag	UNP Q9UBH6
D	702	TYR	-	expression tag	UNP Q9UBH6
D	703	PHE	-	expression tag	UNP Q9UBH6
D	704	GLN	-	expression tag	UNP Q9UBH6

- Molecule 2 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: $C_6H_{18}O_{24}P_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
2	A	1	Total	C	O	P	0
			36	6	24	6	
2	D	1	Total	C	O	P	0
			36	6	24	6	

- Molecule 3 is CHOLESTEROL (three-letter code: CLR) (formula: $C_{27}H_{46}O$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
3	A	1	Total	C	O	0
			28	27	1	

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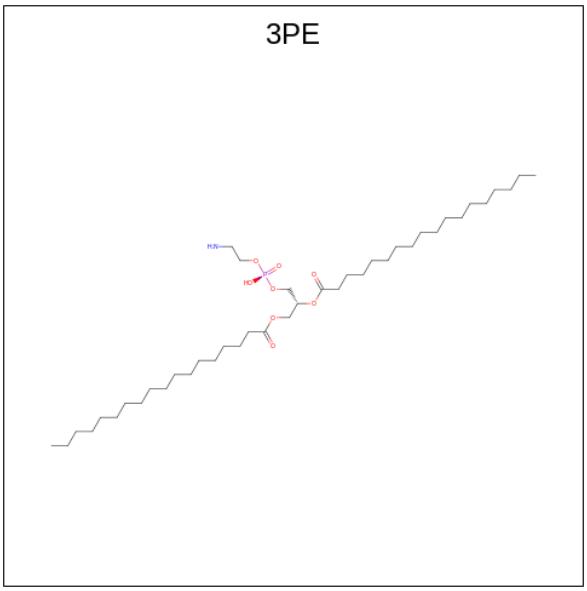
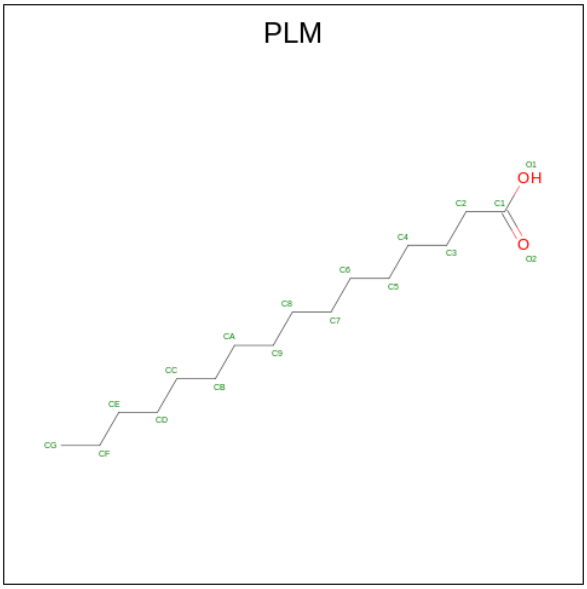
Mol	Chain	Residues	Atoms	AltConf
3	A	1	Total C O 28 27 1	0
3	A	1	Total C O 28 27 1	0
3	A	1	Total C O 28 27 1	0
3	A	1	Total C O 28 27 1	0
3	A	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0
3	D	1	Total C O 28 27 1	0

- Molecule 4 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$) (labeled as "Ligand of Interest" by depositor).



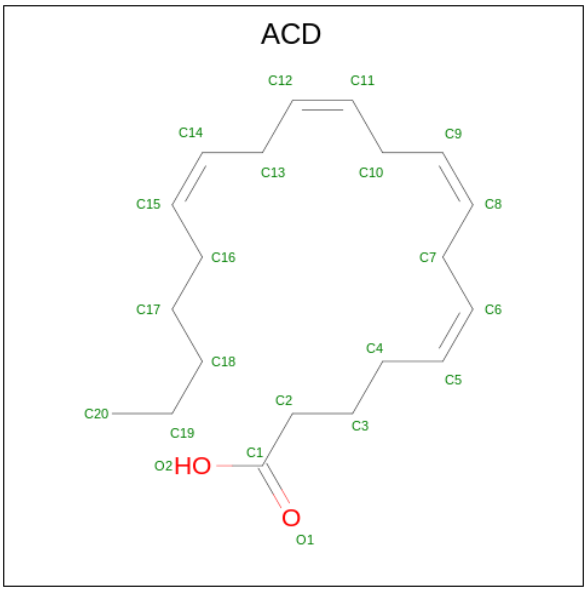
Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	A	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	A	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	D	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	D	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	D	1	Total	C	N	O	P	0
			51	41	1	8	1	

- Molecule 5 is PALMITIC ACID (three-letter code: PLM) (formula: $C_{16}H_{32}O_2$) (labeled as "Ligand of Interest" by depositor).



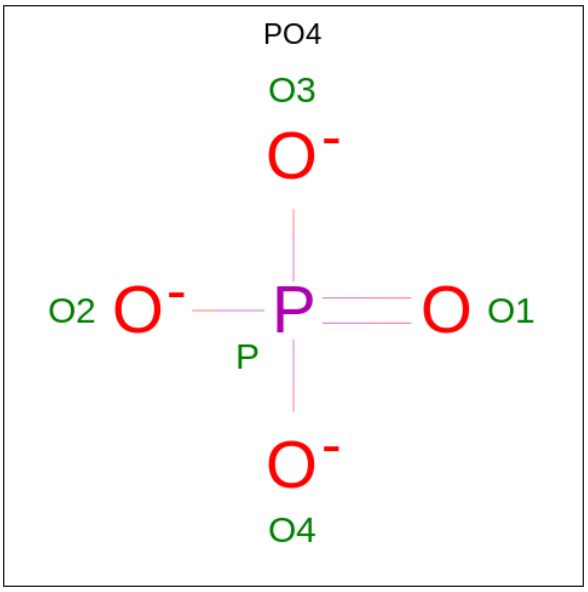
Mol	Chain	Residues	Atoms			AltConf
5	A	1	Total	C	O	0
			18	16	2	
5	D	1	Total	C	O	0
			18	16	2	

- Molecule 6 is ARACHIDONIC ACID (three-letter code: ACD) (formula: $C_{20}H_{32}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
6	A	1	Total C O 22 20 2	0
6	D	1	Total C O 22 20 2	0

- Molecule 7 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
7	A	1	Total O P 5 4 1	0

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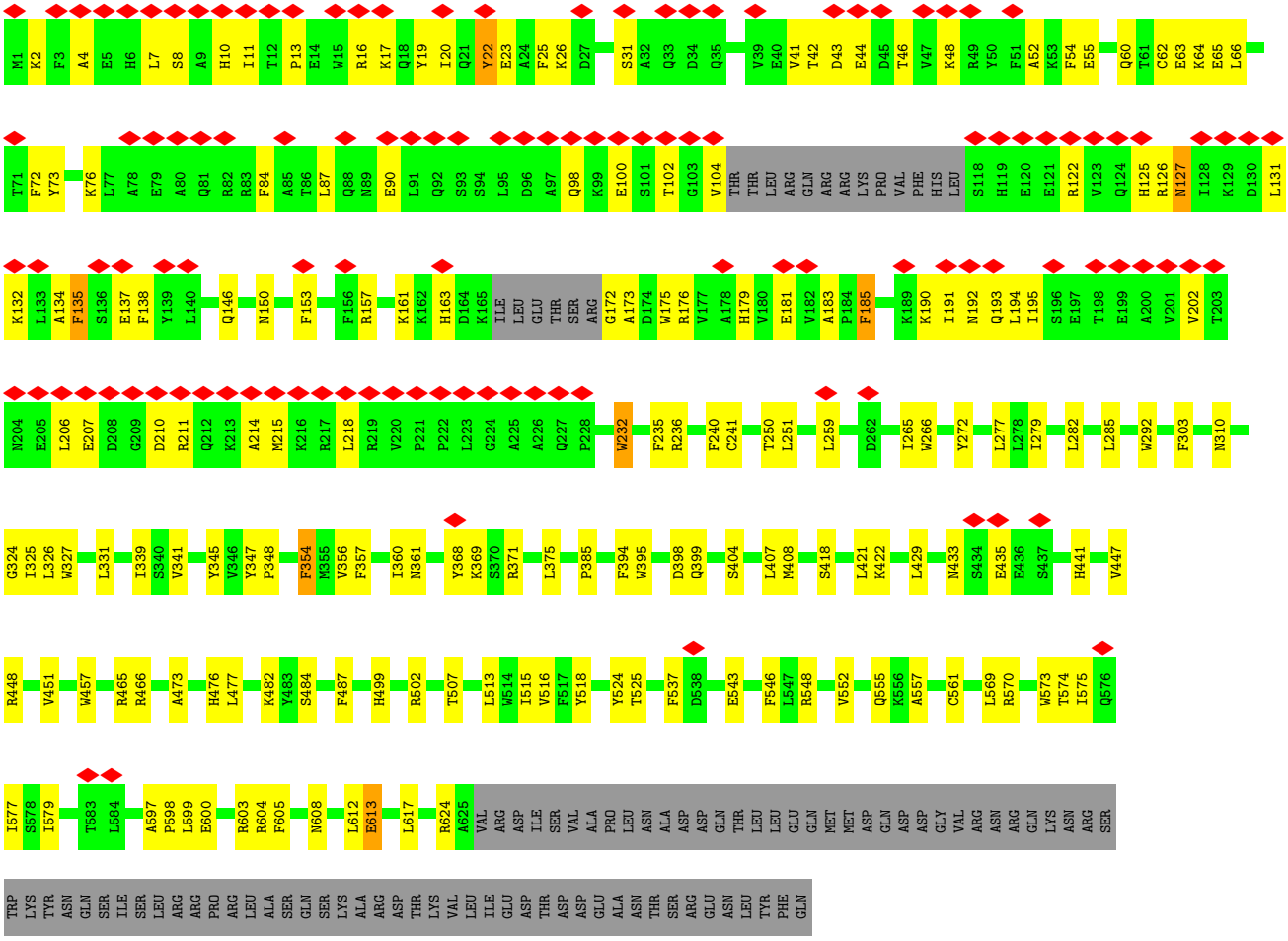
Mol	Chain	Residues	Atoms			AltConf
7	A	1	Total	O	P	0
			5	4	1	
7	A	1	Total	O	P	0
			5	4	1	
7	A	1	Total	O	P	0
			5	4	1	
7	A	1	Total	O	P	0
			5	4	1	
7	D	1	Total	O	P	0
			5	4	1	
7	D	1	Total	O	P	0
			5	4	1	
7	D	1	Total	O	P	0
			5	4	1	
7	D	1	Total	O	P	0
			5	4	1	
7	D	1	Total	O	P	0
			5	4	1	

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.

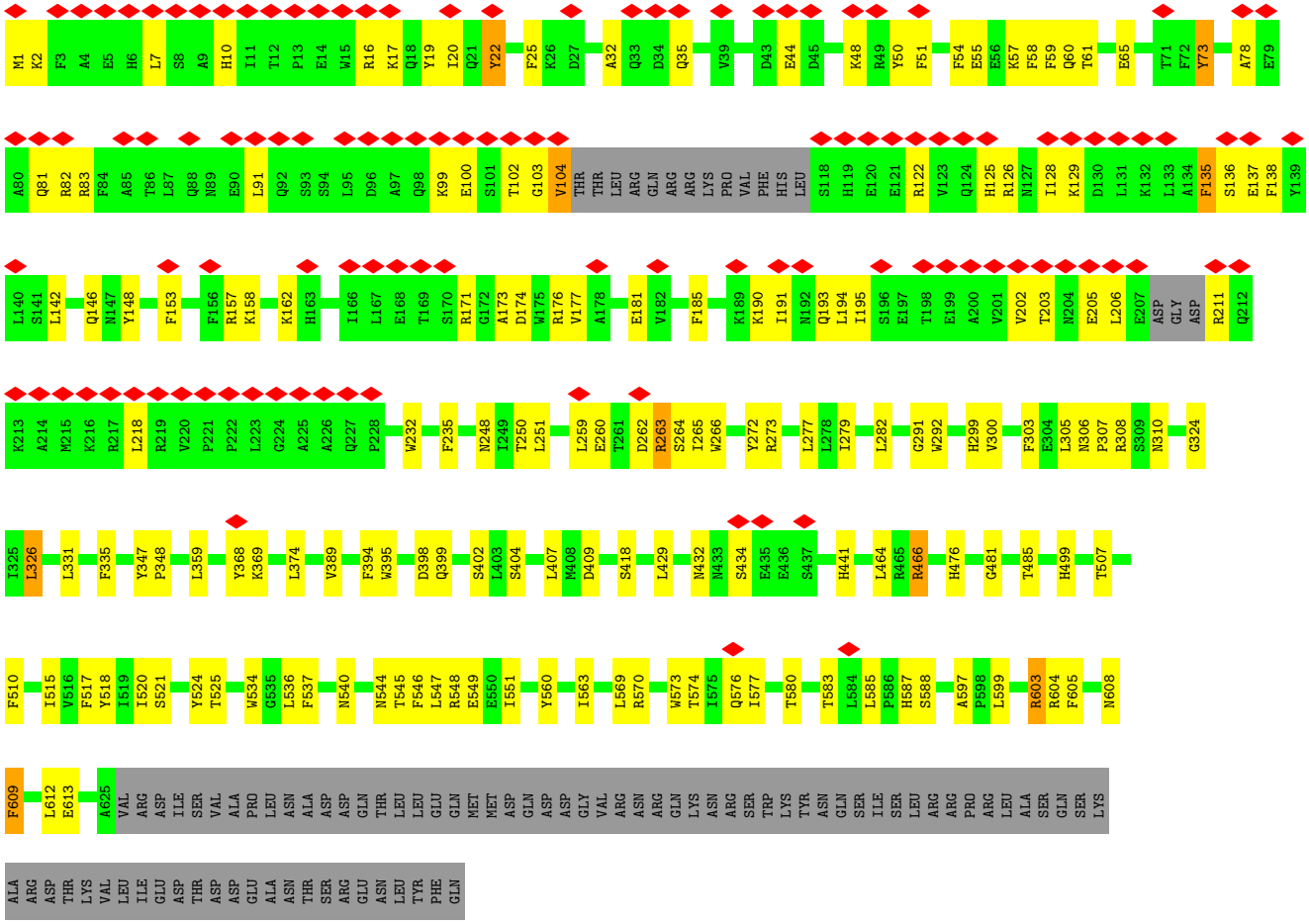
• Molecule 1: Solute carrier family 53 member 1

Chain A:



• Molecule 1: Solute carrier family 53 member 1

Chain D:


M1 K2 F3 A4 E5 H6 L7 S8 A9 H10 I11 T12 P13 E14 W15 R16 K17 Q18 Y19 I20 Q21 Y22 F25 K26 D27 A32 Q33 D34 Q35 V39 D43 E44 D45 K48 R49 Y50 F51 F54 E55 E56 K57 F58 F59 Q60 T61 E65 T71 F72 Y73 A78 E79
A80 Q81 R82 R83 F84 A85 T86 L87 Q88 N89 E90 L91 Q92 S93 S94 L95 D96 A97 Q98 K99 E100 S101 T102 G103 V104 THR THR LEU ARG GLN ARG ARG LYS PRO VAL PHE HIS LEU S118 H119 E120 E121 R122 V123 Q124 H125 R126 N127 I128 K129 D130 L131 K132 L133 A134 F135 S136 E137 F138 Y139
L140 S141 L142 Q146 N147 Y148 F153 F156 R157 K158 K162 H163 I166 L167 E168 T169 S170 R171 G172 A173 D174 W175 R176 V177 A178 E181 V182 F185 K189 K190 I191 N192 Q193 L194 I195 S196 E197 T198 E199 A200 V201 V202 T203 N204 E205 L206 E207 ASP GLY ASP R211 Q212
K213 A214 M215 K216 R217 L218 R219 V220 P221 P222 L223 G224 A225 A226 Q227 P228 W232 F235 N248 I249 T250 L251 L259 E260 T261 D262 R263 S264 I265 W266 Y272 R273 L277 L278 I279 L282 G291 W292 H299 V300 F303 E304 L305 N306 P307 R308 S309 N310 G324
I325 L326 L331 F335 Y347 P348 L359 Y368 K369 L374 V389 F394 W395 D398 Q399 S402 L403 S404 L407 M408 D409 S418 L429 N432 N433 S434 E435 E436 S437 H441 L464 R465 R466 H476 G481 T485 H499 T507
F510 I515 V516 F517 Y518 I519 I520 S521 Y524 T525 W534 G535 L536 F537 N540 N544 T545 F546 L547 R548 E549 E550 I551 Y560 I563 L569 R570 W573 T574 L575 Q576 I577 T580 T583 L584 L585 P586 H587 S588 A597 P598 L599 R603 R604 F605 N608
F609 L612 E613 A625 VAL ARG ASP ILE SER VAL ALA PRO LEU ASN ALA ASP ASP GLN THR LEU LEU GLU GLN MET MET ASP GLN ASP ASP GLY VAL ARG ASN ARG GLN LYS ASN ARG SER TRP LYS TYR ASN GLN SER ILE SER LEU ARG ARG PRO ARG LEU ALA SER GLN SER LYS
ALA ARG ASP THR LYS VAL LEU ILE GLU ASP THR ASP ASP GLU ALA ASN THR SER ARG GLU ASN LEU TYR PHE GLN

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	79995	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.019	Depositor
Minimum map value	-1.416	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.024	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	387.84003, 387.84003, 387.84003	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.808, 0.808, 0.808	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, 3PE, IHP, ACD, PLM, CLR

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	0/5175	0.48	0/7014
1	D	0.29	0/5204	0.49	0/7053
All	All	0.29	0/10379	0.49	0/14067

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

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	5030	0	4994	115	0
1	D	5059	0	5036	120	0
2	A	36	0	6	1	0
2	D	36	0	6	5	0
3	A	168	0	276	7	0
3	D	168	0	276	2	0
4	A	153	0	246	4	0
4	D	153	0	246	11	0
5	A	18	0	31	1	0
5	D	18	0	31	1	0
6	A	22	0	31	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	D	22	0	31	0	0
7	A	25	0	0	0	0
7	D	25	0	0	0	0
All	All	10933	0	11210	244	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 11.

All (244) 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:146:GLN:HE22	1:A:191:ILE:HG23	1.45	0.80
1:A:122:ARG:O	1:A:125:HIS:ND1	2.28	0.67
1:A:157:ARG:HH22	1:A:181:GLU:HG3	1.60	0.66
1:D:404:SER:HA	1:D:407:LEU:HD12	1.78	0.66
1:D:277:LEU:HD11	1:D:597:ALA:HB1	1.77	0.65
1:D:534:TRP:HB3	1:D:536:LEU:HD13	1.78	0.65
1:A:398:ASP:OD1	1:A:604:ARG:NH1	2.30	0.65
1:D:545:THR:HG1	1:D:560:TYR:HH	1.43	0.64
1:D:146:GLN:NE2	1:D:191:ILE:HG13	2.13	0.64
1:A:192:ASN:HA	1:A:195:ILE:HD12	1.79	0.64
1:A:63:GLU:HG3	1:A:175:TRP:HZ2	1.64	0.62
1:D:57:LYS:HA	1:D:60:GLN:HE21	1.63	0.62
1:D:2:LYS:NZ	2:D:801:IHP:O21	2.33	0.62
1:A:44:GLU:HG2	1:A:48:LYS:HE3	1.81	0.62
1:A:404:SER:HA	1:A:407:LEU:HD12	1.82	0.61
1:A:161:LYS:HB3	1:A:176:ARG:HH12	1.66	0.61
1:D:259:LEU:HD21	1:D:265:ILE:HG21	1.81	0.61
1:A:207:GLU:HB3	1:A:210:ASP:HB3	1.83	0.60
1:A:482:LYS:HG3	1:A:525:THR:HG22	1.84	0.60
1:D:51:PHE:O	1:D:55:GLU:HG2	2.01	0.59
1:D:251:LEU:HD11	1:D:331:LEU:HD23	1.85	0.59
1:D:16:ARG:HD2	1:D:17:LYS:HD3	1.85	0.59
4:A:817:3PE:H372	3:D:812:CLR:H151	1.84	0.59
1:A:202:VAL:HG22	1:A:206:LEU:HD12	1.84	0.58
1:A:2:LYS:NZ	2:A:801:IHP:O21	2.35	0.58
1:D:125:HIS:HA	1:D:128:ILE:HD12	1.85	0.58
1:A:190:LYS:O	1:A:193:GLN:HG3	2.03	0.58
3:A:806:CLR:H151	4:D:802:3PE:H372	1.87	0.57
1:D:142:LEU:O	1:D:146:GLN:HG2	2.05	0.57
1:D:202:VAL:HG21	1:D:218:LEU:HD21	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:279:ILE:HD13	1:D:324:GLY:HA2	1.86	0.57
1:A:447:VAL:O	1:A:451:VAL:HG22	2.05	0.57
1:D:308:ARG:NH2	2:D:801:IHP:O35	2.38	0.57
1:A:23:GLU:HA	1:A:26:LYS:HE2	1.86	0.57
4:D:814:3PE:H2F2	4:D:814:3PE:H3B2	1.86	0.57
1:A:41:VAL:HG12	1:A:42:THR:HG23	1.87	0.57
1:A:157:ARG:CZ	1:A:176:ARG:HB2	2.35	0.57
1:D:73:TYR:CD1	1:D:185:PHE:HA	2.40	0.57
1:D:99:LYS:O	1:D:103:GLY:N	2.35	0.56
1:D:250:THR:HG22	4:D:802:3PE:H282	1.86	0.56
1:A:385:PRO:O	1:A:465:ARG:NH1	2.39	0.56
1:A:173:ALA:O	1:A:176:ARG:HG2	2.05	0.56
1:A:347:TYR:HB2	1:A:348:PRO:HD3	1.86	0.56
1:D:525:THR:HG23	1:D:570:ARG:HH11	1.71	0.55
1:A:600:GLU:OE2	1:A:603:ARG:NH2	2.40	0.55
1:D:190:LYS:HA	1:D:193:GLN:HG3	1.88	0.55
1:D:303:PHE:HE2	1:D:612:LEU:HD11	1.72	0.55
1:D:374:LEU:HD13	4:D:809:3PE:H232	1.89	0.55
1:A:259:LEU:HD21	1:A:265:ILE:HG21	1.88	0.55
1:A:100:GLU:HA	1:A:104:VAL:HG13	1.89	0.54
1:A:569:LEU:HD11	1:A:599:LEU:HB3	1.90	0.54
1:D:162:LYS:NZ	2:D:801:IHP:O42	2.37	0.54
1:A:135:PHE:CD1	1:A:206:LEU:HD11	2.43	0.54
1:A:515:ILE:HD11	1:A:577:ILE:HD13	1.88	0.54
1:D:61:THR:O	1:D:65:GLU:HG2	2.08	0.54
1:D:19:TYR:HD2	1:D:148:TYR:HD1	1.54	0.54
1:A:235:PHE:HE2	5:A:809:PLM:HA2	1.74	0.53
1:A:361:ASN:HB3	1:A:371:ARG:NH1	2.23	0.53
1:D:263:ARG:HH21	1:D:432:ASN:HA	1.74	0.53
1:D:481:GLY:O	1:D:485:THR:HG23	2.08	0.53
1:D:389:VAL:CG2	1:D:466:ARG:HG2	2.39	0.53
1:D:569:LEU:HD11	1:D:599:LEU:HB3	1.89	0.53
1:D:368:TYR:CE2	1:D:369:LYS:HG2	2.44	0.53
1:D:305:LEU:HD22	4:D:809:3PE:H12	1.91	0.53
1:D:73:TYR:HD1	1:D:185:PHE:HA	1.73	0.52
1:A:146:GLN:O	1:A:150:ASN:ND2	2.37	0.52
4:A:808:3PE:H2F2	4:A:808:3PE:H3B2	1.92	0.52
1:D:202:VAL:HG22	1:D:206:LEU:HD12	1.90	0.52
1:A:232:TRP:HD1	1:A:236:ARG:HH21	1.58	0.52
1:D:583:THR:HG23	1:D:585:LEU:H	1.73	0.52
1:A:191:ILE:HD12	1:A:194:LEU:HD12	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:158:LYS:HZ1	2:D:801:IHP:H4	1.74	0.52
1:D:292:TRP:CZ2	1:D:612:LEU:HD12	2.45	0.52
1:A:285:LEU:CD2	4:A:803:3PE:H362	2.40	0.51
1:A:191:ILE:O	1:A:194:LEU:HB2	2.11	0.51
1:D:173:ALA:HA	1:D:176:ARG:HE	1.75	0.51
1:D:20:ILE:HG13	1:D:25:PHE:CE1	2.45	0.51
1:D:146:GLN:HE22	1:D:191:ILE:HG13	1.73	0.51
1:D:402:SER:OG	1:D:604:ARG:NE	2.39	0.51
1:D:517:PHE:HA	1:D:520:ILE:HG22	1.92	0.51
1:A:20:ILE:HG13	1:A:25:PHE:HE2	1.75	0.51
1:A:250:THR:HG22	4:A:817:3PE:H282	1.92	0.51
1:D:146:GLN:HE21	1:D:195:ILE:CD1	2.22	0.51
1:A:360:ILE:HG13	1:A:361:ASN:H	1.76	0.51
1:D:44:GLU:HG2	1:D:48:LYS:HE3	1.91	0.51
1:D:135:PHE:HA	1:D:138:PHE:HB3	1.91	0.51
1:D:536:LEU:HD23	1:D:563:ILE:HD11	1.93	0.51
1:D:173:ALA:HA	1:D:176:ARG:NE	2.26	0.51
1:A:73:TYR:HD2	1:A:185:PHE:HA	1.75	0.50
1:D:389:VAL:HG21	1:D:466:ARG:HG2	1.93	0.50
1:A:214:ALA:O	1:A:218:LEU:HG	2.11	0.50
1:A:132:LYS:HG2	1:A:206:LEU:HD13	1.93	0.50
1:A:525:THR:HB	1:A:570:ARG:HH21	1.76	0.50
1:A:251:LEU:HD11	1:A:331:LEU:HD23	1.93	0.50
1:D:91:LEU:HG	1:D:205:GLU:OE2	2.11	0.50
1:D:291:GLY:HA3	1:D:609:PHE:HE1	1.77	0.50
1:D:518:TYR:CE1	1:D:573:TRP:HB2	2.47	0.50
1:A:466:ARG:HB3	1:A:476:HIS:CE1	2.47	0.49
1:D:57:LYS:HZ3	1:D:58:PHE:HE1	1.58	0.49
1:A:433:ASN:ND2	1:A:435:GLU:O	2.44	0.49
1:D:235:PHE:HE2	5:D:815:PLM:HA2	1.76	0.49
1:A:310:ASN:N	1:A:310:ASN:OD1	2.46	0.49
1:D:7:LEU:HA	1:D:10:HIS:CE1	2.48	0.49
1:D:59:PHE:CZ	1:D:171:ARG:HG3	2.48	0.49
1:D:32:ALA:HA	1:D:35:GLN:HB2	1.94	0.49
1:A:499:HIS:HB3	1:A:507:THR:OG1	2.13	0.49
1:A:135:PHE:HA	1:A:138:PHE:HB3	1.94	0.48
1:A:303:PHE:HE2	1:A:612:LEU:HD11	1.78	0.48
1:D:122:ARG:HA	1:D:125:HIS:CD2	2.48	0.48
1:A:395:TRP:NE1	1:A:608:ASN:OD1	2.37	0.48
1:D:585:LEU:HD23	1:D:587:HIS:H	1.77	0.48
1:D:306:ASN:HD21	1:D:308:ARG:NE	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:7:LEU:HA	1:A:10:HIS:CE1	2.49	0.48
1:D:515:ILE:HD11	1:D:577:ILE:HG12	1.95	0.48
1:D:171:ARG:NH1	1:D:174:ASP:OD1	2.48	0.47
1:D:266:TRP:CE3	1:D:266:TRP:HA	2.49	0.47
1:D:499:HIS:HB3	1:D:507:THR:HB	1.95	0.47
1:A:484:SER:HA	1:A:487:PHE:HD1	1.80	0.47
1:D:395:TRP:NE1	1:D:608:ASN:OD1	2.35	0.47
1:D:300:VAL:HG11	1:D:307:PRO:HA	1.96	0.47
1:A:13:PRO:O	1:A:17:LYS:NZ	2.34	0.47
1:A:22:TYR:O	1:A:26:LYS:HG3	2.14	0.47
1:A:272:TYR:HB3	1:A:327:TRP:HE1	1.80	0.47
1:A:395:TRP:O	1:A:399:GLN:HG2	2.15	0.47
1:D:202:VAL:HA	1:D:206:LEU:HB2	1.95	0.47
1:A:66:LEU:HD11	1:A:179:HIS:HB3	1.96	0.47
1:A:555:GLN:HG3	1:A:557:ALA:H	1.78	0.47
1:A:368:TYR:CE2	1:A:369:LYS:HG2	2.50	0.47
1:D:177:VAL:O	1:D:181:GLU:HB2	2.15	0.47
1:D:299:HIS:O	1:D:303:PHE:HB2	2.15	0.47
1:D:310:ASN:OD1	1:D:310:ASN:N	2.47	0.46
1:D:398:ASP:OD1	1:D:604:ARG:NH1	2.47	0.46
3:A:806:CLR:H71	4:D:802:3PE:H351	1.98	0.46
1:D:418:SER:HA	3:D:816:CLR:H6	1.97	0.46
1:A:183:ALA:HB3	1:A:185:PHE:CE1	2.50	0.46
1:A:552:VAL:HG23	1:A:617:LEU:HD11	1.96	0.46
1:D:78:ALA:O	1:D:81:GLN:HG2	2.15	0.46
1:A:240:PHE:HA	1:A:325:ILE:HD11	1.98	0.46
1:D:122:ARG:O	1:D:126:ARG:HG3	2.16	0.45
4:D:809:3PE:H221	4:D:809:3PE:H341	1.98	0.45
1:A:292:TRP:CZ2	1:A:612:LEU:HD12	2.51	0.45
1:D:173:ALA:O	1:D:176:ARG:HG2	2.15	0.45
1:D:537:PHE:HE1	1:D:546:PHE:HB3	1.81	0.45
3:A:806:CLR:H162	3:A:806:CLR:H221	1.76	0.45
1:D:142:LEU:HD22	1:D:191:ILE:HD11	1.97	0.45
1:A:11:ILE:HG23	1:A:19:TYR:HE1	1.81	0.45
1:D:260:GLU:HG3	1:D:262:ASP:H	1.82	0.45
1:A:172:GLY:C	1:A:176:ARG:HE	2.19	0.45
1:A:279:ILE:HD13	1:A:324:GLY:HA2	1.98	0.45
1:A:282:LEU:HD23	1:A:282:LEU:HA	1.81	0.44
1:A:356:VAL:O	1:A:360:ILE:HG12	2.17	0.44
1:A:548:ARG:NH1	1:A:613:GLU:OE2	2.50	0.44
1:A:16:ARG:HA	1:A:19:TYR:CD1	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:43:ASP:O	1:A:46:THR:OG1	2.32	0.44
1:D:203:THR:HG21	1:D:211:ARG:HD2	1.98	0.44
1:A:127:ASN:O	1:A:131:LEU:HD13	2.17	0.44
1:A:303:PHE:CE2	1:A:612:LEU:HD11	2.53	0.44
1:D:282:LEU:HD23	1:D:282:LEU:HA	1.83	0.44
1:D:603:ARG:HG3	1:D:603:ARG:HH11	1.83	0.44
1:A:31:SER:OG	1:D:122:ARG:NH1	2.51	0.44
1:D:291:GLY:HA3	1:D:609:PHE:CE1	2.52	0.44
1:D:395:TRP:O	1:D:399:GLN:HG2	2.18	0.44
1:A:134:ALA:O	1:A:137:GLU:HG2	2.18	0.44
1:D:153:PHE:O	1:D:157:ARG:HG2	2.18	0.44
1:D:569:LEU:HB3	1:D:603:ARG:HG3	1.99	0.44
1:A:25:PHE:CD1	1:A:25:PHE:N	2.85	0.44
1:D:19:TYR:HD2	1:D:148:TYR:CD1	2.32	0.44
1:D:158:LYS:NZ	2:D:801:IHP:H4	2.33	0.44
1:A:266:TRP:HA	1:A:266:TRP:CE3	2.53	0.43
1:A:360:ILE:O	1:A:371:ARG:NH1	2.51	0.43
1:A:513:LEU:HA	1:A:516:VAL:HB	1.99	0.43
1:A:537:PHE:HE1	1:A:546:PHE:HB3	1.82	0.43
3:A:802:CLR:H263	3:A:802:CLR:H232	1.83	0.43
1:A:8:SER:HA	1:A:11:ILE:HD12	2.00	0.43
1:D:99:LYS:HA	1:D:102:THR:HB	2.00	0.43
1:A:153:PHE:O	1:A:157:ARG:HG2	2.18	0.43
1:A:369:LYS:HB3	1:A:369:LYS:HE3	1.83	0.43
1:D:73:TYR:O	1:D:73:TYR:CD2	2.71	0.43
1:D:272:TYR:CD1	1:D:331:LEU:HD13	2.53	0.43
1:A:232:TRP:HZ3	4:D:814:3PE:H2	1.84	0.43
1:D:136:SER:OG	1:D:137:GLU:OE1	2.36	0.43
4:D:814:3PE:H322	4:D:814:3PE:H241	2.00	0.43
1:D:429:LEU:HD12	1:D:429:LEU:HA	1.87	0.43
1:A:52:ALA:O	1:A:55:GLU:HG3	2.19	0.43
1:A:561:CYS:HB3	3:A:802:CLR:H232	2.00	0.43
1:A:473:ALA:O	1:A:477:LEU:HB2	2.18	0.43
1:A:543:GLU:OE2	1:A:543:GLU:N	2.26	0.43
1:D:78:ALA:O	1:D:82:ARG:HG3	2.19	0.43
1:A:422:LYS:HD3	1:A:422:LYS:HA	1.80	0.43
1:D:518:TYR:OH	1:D:574:THR:N	2.52	0.42
1:A:345:TYR:CD2	1:A:421:LEU:HD11	2.53	0.42
1:A:399:GLN:OE1	1:A:608:ASN:ND2	2.52	0.42
1:D:59:PHE:CE2	1:D:171:ARG:HG3	2.54	0.42
1:A:135:PHE:HD1	1:A:206:LEU:HD11	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:359:LEU:HD13	4:D:809:3PE:H292	2.00	0.42
1:D:547:LEU:HD23	1:D:551:ILE:HG21	2.02	0.42
1:A:62:CYS:O	1:A:66:LEU:HB2	2.19	0.42
1:A:339:ILE:HG22	1:A:341:VAL:HG12	2.01	0.42
1:A:418:SER:HA	3:A:810:CLR:H6	2.01	0.42
1:A:484:SER:HA	1:A:487:PHE:CD1	2.54	0.42
1:D:126:ARG:O	1:D:129:LYS:HG2	2.20	0.42
1:A:11:ILE:HG23	1:A:19:TYR:CE1	2.55	0.42
1:D:157:ARG:HH22	1:D:181:GLU:HG3	1.85	0.42
1:D:521:SER:O	1:D:525:THR:HG22	2.20	0.42
1:A:348:PRO:HG2	1:A:429:LEU:HD21	2.01	0.42
1:A:408:MET:HG3	1:A:448:ARG:NH1	2.34	0.42
1:A:172:GLY:HA3	1:A:176:ARG:HH21	1.85	0.42
1:D:22:TYR:OH	1:D:158:LYS:HB3	2.19	0.42
1:D:326:LEU:HD23	1:D:326:LEU:HA	1.81	0.42
1:A:277:LEU:HD11	1:A:597:ALA:HB1	2.00	0.41
1:A:87:LEU:HD13	1:A:135:PHE:CD2	2.55	0.41
1:D:585:LEU:HB3	1:D:588:SER:HB3	2.02	0.41
1:D:264:SER:HB3	1:D:434:SER:HA	2.02	0.41
1:D:464:LEU:HD23	1:D:464:LEU:HA	1.83	0.41
1:A:518:TYR:OH	1:A:574:THR:HG23	2.21	0.41
1:A:575:ILE:O	1:A:579:ILE:HG13	2.21	0.41
1:A:98:GLN:O	1:A:102:THR:N	2.54	0.41
1:A:354:PHE:HA	1:A:357:PHE:HB3	2.01	0.41
1:D:303:PHE:HB3	1:D:305:LEU:HG	2.01	0.41
1:D:466:ARG:HB3	1:D:476:HIS:CE1	2.55	0.41
3:A:810:CLR:H162	3:A:810:CLR:H221	1.49	0.41
1:A:76:LYS:HA	1:A:76:LYS:HD3	1.83	0.41
1:D:248:ASN:HD22	4:D:814:3PE:H3D1	1.85	0.41
1:A:4:ALA:HB1	1:A:26:LYS:NZ	2.36	0.41
1:A:122:ARG:O	1:A:126:ARG:HG3	2.20	0.41
1:D:544:ASN:ND2	1:D:549:GLU:O	2.53	0.41
1:A:87:LEU:O	1:A:90:GLU:HG2	2.21	0.41
1:A:597:ALA:HB3	1:A:598:PRO:HD3	2.03	0.41
1:D:540:ASN:OD1	1:D:549:GLU:HB2	2.21	0.41
1:A:429:LEU:HD12	1:A:429:LEU:HA	1.95	0.41
1:D:157:ARG:HA	1:D:157:ARG:HD3	1.91	0.41
1:D:190:LYS:O	1:D:194:LEU:HG	2.21	0.41
1:D:19:TYR:CD2	1:D:148:TYR:HD1	2.37	0.40
1:A:60:GLN:O	1:A:64:LYS:HG2	2.21	0.40
1:D:190:LYS:HB3	1:D:193:GLN:HE21	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:273:ARG:HB3	1:D:409:ASP:OD1	2.21	0.40
1:D:576:GLN:O	1:D:580:THR:HG22	2.21	0.40
1:A:211:ARG:O	1:A:215:MET:HG2	2.20	0.40
1:A:375:LEU:HD23	1:A:375:LEU:HA	1.86	0.40
1:A:457:TRP:HA	1:A:487:PHE:HZ	1.86	0.40
1:D:100:GLU:HA	1:D:104:VAL:HB	2.03	0.40
1:D:83:ARG:NH1	1:D:83:ARG:HA	2.37	0.40
1:D:347:TYR:HB2	1:D:348:PRO:HD3	2.03	0.40
1:D:548:ARG:NH2	1:D:613:GLU:OE1	2.54	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	600/704 (85%)	580 (97%)	20 (3%)	0	100	100
1	D	603/704 (86%)	586 (97%)	17 (3%)	0	100	100
All	All	1203/1408 (85%)	1166 (97%)	37 (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	537/629 (85%)	516 (96%)	21 (4%)	27 53
1	D	541/629 (86%)	522 (96%)	19 (4%)	31 56
All	All	1078/1258 (86%)	1038 (96%)	40 (4%)	31 54

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	22	TYR
1	A	54	PHE
1	A	65	GLU
1	A	72	PHE
1	A	84	PHE
1	A	127	ASN
1	A	135	PHE
1	A	163	HIS
1	A	185	PHE
1	A	232	TRP
1	A	241	CYS
1	A	326	LEU
1	A	354	PHE
1	A	394	PHE
1	A	441	HIS
1	A	502	ARG
1	A	524	TYR
1	A	573	TRP
1	A	605	PHE
1	A	613	GLU
1	A	624	ARG
1	D	1	MET
1	D	22	TYR
1	D	50	TYR
1	D	54	PHE
1	D	73	TYR
1	D	104	VAL
1	D	135	PHE
1	D	232	TRP
1	D	263	ARG
1	D	326	LEU
1	D	335	PHE
1	D	394	PHE
1	D	441	HIS
1	D	466	ARG

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Mol	Chain	Res	Type
1	D	510	PHE
1	D	524	TYR
1	D	603	ARG
1	D	605	PHE
1	D	609	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	146	GLN
1	A	149	GLN
1	D	60	GLN
1	D	248	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

34 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	$\#\|Z\|>2$
7	PO4	A	815	-	4,4,4	0.95	0	6,6,6	0.45	0
3	CLR	A	805	-	31,31,31	0.38	0	48,48,48	0.79	1 (2%)
7	PO4	A	816	-	4,4,4	0.95	0	6,6,6	0.47	0
3	CLR	A	810	-	31,31,31	0.37	0	48,48,48	0.45	0
4	3PE	A	817	-	50,50,50	0.52	0	53,55,55	0.53	1 (1%)
7	PO4	A	812	-	4,4,4	0.99	0	6,6,6	0.45	0
3	CLR	D	812	-	31,31,31	0.39	0	48,48,48	0.62	0
7	PO4	D	805	-	4,4,4	0.98	0	6,6,6	0.46	0
2	IHP	D	801	-	36,36,36	1.48	6 (16%)	54,60,60	0.83	3 (5%)
3	CLR	D	816	-	31,31,31	0.36	0	48,48,48	0.48	0
3	CLR	A	806	-	31,31,31	0.38	0	48,48,48	0.61	0
4	3PE	A	803	-	50,50,50	0.28	0	53,55,55	0.30	0
7	PO4	D	803	-	4,4,4	0.97	0	6,6,6	0.50	0
4	3PE	D	814	-	50,50,50	0.51	0	53,55,55	0.55	1 (1%)
6	ACD	A	811	-	21,21,21	0.56	0	21,21,21	0.59	0
7	PO4	D	807	-	4,4,4	0.97	0	6,6,6	0.38	0
7	PO4	D	806	-	4,4,4	0.94	0	6,6,6	0.43	0
3	CLR	D	808	-	31,31,31	0.39	0	48,48,48	0.54	0
3	CLR	A	802	-	31,31,31	0.40	0	48,48,48	0.57	0
6	ACD	D	817	-	21,21,21	0.55	0	21,21,21	0.58	0
3	CLR	A	804	-	31,31,31	0.38	0	48,48,48	0.49	0
3	CLR	D	810	-	31,31,31	0.38	0	48,48,48	0.51	0
4	3PE	D	802	-	50,50,50	0.51	0	53,55,55	0.54	1 (1%)
3	CLR	A	807	-	31,31,31	0.39	0	48,48,48	0.52	0
4	3PE	D	809	-	50,50,50	0.51	0	53,55,55	0.58	1 (1%)
5	PLM	D	815	-	17,17,17	0.83	1 (5%)	17,17,17	0.75	2 (11%)
4	3PE	A	808	-	50,50,50	0.51	0	53,55,55	0.54	1 (1%)
2	IHP	A	801	-	36,36,36	1.49	6 (16%)	54,60,60	0.83	2 (3%)
7	PO4	A	813	-	4,4,4	0.96	0	6,6,6	0.45	0
7	PO4	A	814	-	4,4,4	0.98	0	6,6,6	0.42	0
3	CLR	D	813	-	31,31,31	0.40	0	48,48,48	0.53	0
3	CLR	D	811	-	31,31,31	0.38	0	48,48,48	0.75	0
7	PO4	D	804	-	4,4,4	0.95	0	6,6,6	0.42	0
5	PLM	A	809	-	17,17,17	0.85	1 (5%)	17,17,17	0.75	2 (11%)

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
3	CLR	A	805	-	-	6/10/68/68	0/4/4/4
3	CLR	A	810	-	-	7/10/68/68	0/4/4/4
4	3PE	A	817	-	-	13/54/54/54	-
3	CLR	D	812	-	-	5/10/68/68	0/4/4/4
2	IHP	D	801	-	-	9/30/54/54	0/1/1/1
3	CLR	D	816	-	-	7/10/68/68	0/4/4/4
3	CLR	A	806	-	-	3/10/68/68	0/4/4/4
4	3PE	A	803	-	-	24/54/54/54	-
4	3PE	D	814	-	-	25/54/54/54	-
6	ACD	A	811	-	-	3/19/19/19	-
3	CLR	D	808	-	-	8/10/68/68	0/4/4/4
3	CLR	A	802	-	-	6/10/68/68	0/4/4/4
6	ACD	D	817	-	-	3/19/19/19	-
3	CLR	A	804	-	-	2/10/68/68	0/4/4/4
3	CLR	D	810	-	-	2/10/68/68	0/4/4/4
4	3PE	D	802	-	-	12/54/54/54	-
3	CLR	A	807	-	-	5/10/68/68	0/4/4/4
4	3PE	D	809	-	-	26/54/54/54	-
5	PLM	D	815	-	-	6/15/15/15	-
4	3PE	A	808	-	-	26/54/54/54	-
2	IHP	A	801	-	-	11/30/54/54	0/1/1/1
3	CLR	D	813	-	-	5/10/68/68	0/4/4/4
3	CLR	D	811	-	-	6/10/68/68	0/4/4/4
5	PLM	A	809	-	-	4/15/15/15	-

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	801	IHP	P4-O14	3.49	1.65	1.59
2	D	801	IHP	P4-O14	3.42	1.65	1.59
2	A	801	IHP	P2-O12	3.16	1.65	1.59
2	A	801	IHP	P1-O11	3.14	1.65	1.59
2	D	801	IHP	P3-O13	3.14	1.65	1.59
2	D	801	IHP	P6-O16	3.13	1.65	1.59
2	A	801	IHP	P6-O16	3.13	1.65	1.59
2	D	801	IHP	P2-O12	3.12	1.65	1.59
2	A	801	IHP	P3-O13	3.09	1.65	1.59
2	D	801	IHP	P1-O11	3.08	1.65	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	801	IHP	P5-O15	3.04	1.65	1.59
2	A	801	IHP	P5-O15	3.01	1.65	1.59
5	A	809	PLM	C2-C1	2.64	1.56	1.50
5	D	815	PLM	C2-C1	2.58	1.56	1.50

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	801	IHP	C6-C5-C4	2.50	115.89	110.41
2	A	801	IHP	C6-C5-C4	2.49	115.85	110.41
4	D	814	3PE	O12-P-O14	2.38	124.00	112.24
4	A	808	3PE	O12-P-O14	2.38	124.00	112.24
4	D	802	3PE	O12-P-O14	2.34	123.79	112.24
4	A	817	3PE	O12-P-O14	2.32	123.72	112.24
4	D	809	3PE	O12-P-O14	2.29	123.57	112.24
5	D	815	PLM	O1-C1-O2	2.26	128.93	123.30
5	A	809	PLM	O1-C1-O2	2.23	128.87	123.30
3	A	805	CLR	C13-C17-C20	2.17	122.88	119.49
2	D	801	IHP	C5-C6-C1	2.12	115.05	110.41
2	D	801	IHP	C6-C1-C2	2.06	114.93	110.41
5	A	809	PLM	O2-C1-C2	-2.05	116.50	123.08
5	D	815	PLM	O2-C1-C2	-2.01	116.63	123.08
2	A	801	IHP	C6-C1-C2	2.00	114.80	110.41

There are no chirality outliers.

All (224) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	IHP	C3-C2-O12-P2
2	A	801	IHP	C2-C3-O13-P3
2	A	801	IHP	C5-C4-O14-P4
2	A	801	IHP	C6-O16-P6-O46
2	D	801	IHP	C5-C4-O14-P4
3	A	807	CLR	C13-C17-C20-C21
3	A	807	CLR	C16-C17-C20-C22
4	A	803	3PE	C1-O11-P-O13
4	A	803	3PE	C22-C21-O21-C2
4	A	808	3PE	C1-O11-P-O12
4	A	808	3PE	C11-O13-P-O14
4	A	808	3PE	O13-C11-C12-N
4	A	808	3PE	C22-C21-O21-C2
4	A	817	3PE	O13-C11-C12-N

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Mol	Chain	Res	Type	Atoms
4	A	817	3PE	C22-C21-O21-C2
4	D	802	3PE	C11-O13-P-O14
4	D	802	3PE	O13-C11-C12-N
4	D	809	3PE	C1-O11-P-O13
4	D	809	3PE	C11-O13-P-O14
4	D	809	3PE	C22-C21-O21-C2
4	D	814	3PE	O13-C11-C12-N
4	D	814	3PE	C22-C21-O21-C2
6	A	811	ACD	C11-C12-C13-C14
6	D	817	ACD	C11-C12-C13-C14
4	A	803	3PE	O32-C31-O31-C3
4	D	809	3PE	O32-C31-O31-C3
3	A	807	CLR	C16-C17-C20-C21
3	A	810	CLR	C16-C17-C20-C21
3	A	810	CLR	C13-C17-C20-C21
3	D	816	CLR	C13-C17-C20-C21
3	A	807	CLR	C13-C17-C20-C22
4	A	803	3PE	O22-C21-O21-C2
4	A	808	3PE	O22-C21-O21-C2
4	A	817	3PE	O22-C21-O21-C2
4	D	809	3PE	O22-C21-O21-C2
4	D	814	3PE	O22-C21-O21-C2
4	A	803	3PE	C32-C31-O31-C3
3	A	804	CLR	C21-C20-C22-C23
3	D	808	CLR	C21-C20-C22-C23
3	D	810	CLR	C21-C20-C22-C23
3	D	816	CLR	C16-C17-C20-C21
3	A	810	CLR	C13-C17-C20-C22
3	D	816	CLR	C13-C17-C20-C22
4	D	809	3PE	C32-C31-O31-C3
4	A	808	3PE	O32-C31-O31-C3
3	A	810	CLR	C16-C17-C20-C22
3	D	816	CLR	C16-C17-C20-C22
3	D	813	CLR	C13-C17-C20-C22
3	D	808	CLR	C17-C20-C22-C23
3	D	810	CLR	C17-C20-C22-C23
4	A	808	3PE	C32-C31-O31-C3
3	A	802	CLR	C21-C20-C22-C23
3	A	804	CLR	C17-C20-C22-C23
3	A	810	CLR	C17-C20-C22-C23
3	D	811	CLR	C17-C20-C22-C23
3	D	816	CLR	C17-C20-C22-C23

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Mol	Chain	Res	Type	Atoms
3	A	807	CLR	C21-C20-C22-C23
3	A	810	CLR	C21-C20-C22-C23
3	A	805	CLR	C17-C20-C22-C23
3	A	806	CLR	C17-C20-C22-C23
3	D	812	CLR	C17-C20-C22-C23
3	A	806	CLR	C22-C23-C24-C25
3	A	810	CLR	C22-C23-C24-C25
3	D	808	CLR	C22-C23-C24-C25
3	D	816	CLR	C22-C23-C24-C25
3	D	811	CLR	C21-C20-C22-C23
3	D	813	CLR	C21-C20-C22-C23
3	D	816	CLR	C21-C20-C22-C23
3	D	812	CLR	C22-C23-C24-C25
3	A	802	CLR	C20-C22-C23-C24
3	A	802	CLR	C17-C20-C22-C23
3	A	805	CLR	C21-C20-C22-C23
4	A	803	3PE	C31-C32-C33-C34
3	D	813	CLR	C16-C17-C20-C21
3	A	802	CLR	C22-C23-C24-C25
3	D	813	CLR	C13-C17-C20-C21
4	A	808	3PE	C1-O11-P-O13
4	A	808	3PE	C11-O13-P-O11
3	D	813	CLR	C16-C17-C20-C22
4	D	809	3PE	C3E-C3F-C3G-C3H
4	D	814	3PE	C34-C35-C36-C37
5	D	815	PLM	C3-C4-C5-C6
4	D	814	3PE	C25-C26-C27-C28
5	A	809	PLM	CB-CC-CD-CE
4	D	814	3PE	C32-C31-O31-C3
4	D	802	3PE	C21-C22-C23-C24
4	A	808	3PE	C35-C36-C37-C38
4	D	814	3PE	C35-C36-C37-C38
2	A	801	IHP	C1-C2-O12-P2
2	A	801	IHP	C4-C3-O13-P3
2	D	801	IHP	C2-C3-O13-P3
2	D	801	IHP	C4-C3-O13-P3
4	A	817	3PE	C22-C23-C24-C25
4	A	817	3PE	C3C-C3D-C3E-C3F
3	A	805	CLR	C22-C23-C24-C25
4	D	814	3PE	O32-C31-O31-C3
5	A	809	PLM	C3-C4-C5-C6
4	D	814	3PE	C3D-C3E-C3F-C3G

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Mol	Chain	Res	Type	Atoms
4	D	814	3PE	C26-C27-C28-C29
4	D	809	3PE	C11-O13-P-O11
4	D	809	3PE	C22-C23-C24-C25
4	D	814	3PE	C3A-C3B-C3C-C3D
4	D	809	3PE	C27-C28-C29-C2A
4	D	809	3PE	C2A-C2B-C2C-C2D
4	A	808	3PE	C2F-C2G-C2H-C2I
4	D	809	3PE	C35-C36-C37-C38
4	D	814	3PE	C33-C34-C35-C36
4	A	803	3PE	C2D-C2E-C2F-C2G
4	A	803	3PE	C3E-C3F-C3G-C3H
3	D	811	CLR	C20-C22-C23-C24
3	D	811	CLR	C22-C23-C24-C25
3	A	805	CLR	C20-C22-C23-C24
4	A	803	3PE	C3F-C3G-C3H-C3I
4	D	814	3PE	C2F-C2G-C2H-C2I
4	A	803	3PE	C33-C34-C35-C36
4	D	809	3PE	C3C-C3D-C3E-C3F
4	A	808	3PE	C1-C2-C3-O31
4	D	814	3PE	C1-O11-P-O13
6	A	811	ACD	C11-C10-C9-C8
6	A	811	ACD	C12-C13-C14-C15
6	D	817	ACD	C11-C10-C9-C8
6	D	817	ACD	C12-C13-C14-C15
3	D	812	CLR	C21-C20-C22-C23
3	D	811	CLR	C23-C24-C25-C26
3	D	811	CLR	C23-C24-C25-C27
2	A	801	IHP	C3-O13-P3-O23
2	D	801	IHP	C3-O13-P3-O23
4	D	809	3PE	C28-C29-C2A-C2B
4	A	817	3PE	C21-C22-C23-C24
4	A	808	3PE	C37-C38-C39-C3A
4	D	802	3PE	C32-C31-O31-C3
3	D	808	CLR	C13-C17-C20-C22
4	A	803	3PE	C22-C23-C24-C25
4	D	814	3PE	C1-C2-C3-O31
3	A	806	CLR	C21-C20-C22-C23
5	D	815	PLM	CB-CC-CD-CE
4	A	808	3PE	O21-C2-C3-O31
4	D	802	3PE	O21-C2-C3-O31
4	D	814	3PE	O21-C2-C3-O31
4	D	814	3PE	C2E-C2F-C2G-C2H

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Mol	Chain	Res	Type	Atoms
2	A	801	IHP	C4-O14-P4-O44
2	D	801	IHP	C3-C2-O12-P2
2	D	801	IHP	C4-O14-P4-O44
3	D	808	CLR	C16-C17-C20-C22
4	D	809	3PE	C29-C2A-C2B-C2C
4	A	803	3PE	C24-C25-C26-C27
4	A	803	3PE	C11-O13-P-O11
4	A	817	3PE	C1-O11-P-O13
4	A	808	3PE	C2-C1-O11-P
4	A	803	3PE	C1-O11-P-O12
4	A	808	3PE	C11-O13-P-O12
4	D	809	3PE	C1-O11-P-O12
3	A	805	CLR	C23-C24-C25-C27
4	A	803	3PE	C32-C33-C34-C35
4	D	802	3PE	C1-C2-C3-O31
4	D	802	3PE	O32-C31-O31-C3
4	D	809	3PE	C37-C38-C39-C3A
4	D	809	3PE	C34-C35-C36-C37
3	D	808	CLR	C13-C17-C20-C21
4	A	808	3PE	C25-C26-C27-C28
4	D	809	3PE	C36-C37-C38-C39
4	A	803	3PE	C1-C2-O21-C21
4	A	803	3PE	C3-C2-O21-C21
4	D	809	3PE	C3-C2-O21-C21
4	D	809	3PE	C3B-C3C-C3D-C3E
4	D	814	3PE	C27-C28-C29-C2A
4	D	809	3PE	C23-C24-C25-C26
4	A	817	3PE	C11-O13-P-O11
4	D	802	3PE	C11-O13-P-O11
4	D	802	3PE	C2F-C2G-C2H-C2I
4	A	803	3PE	C36-C37-C38-C39
3	A	805	CLR	C23-C24-C25-C26
5	D	815	PLM	O2-C1-C2-C3
4	D	809	3PE	C3F-C3G-C3H-C3I
3	D	808	CLR	C16-C17-C20-C21
5	D	815	PLM	C6-C7-C8-C9
4	A	808	3PE	C3C-C3D-C3E-C3F
4	A	808	3PE	C2B-C2C-C2D-C2E
5	D	815	PLM	O1-C1-C2-C3
4	A	808	3PE	C3F-C3G-C3H-C3I
4	A	803	3PE	C3C-C3D-C3E-C3F
4	A	808	3PE	C38-C39-C3A-C3B

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Mol	Chain	Res	Type	Atoms
4	D	814	3PE	C3E-C3F-C3G-C3H
4	D	802	3PE	C3D-C3E-C3F-C3G
4	A	817	3PE	C3D-C3E-C3F-C3G
4	D	814	3PE	C2B-C2C-C2D-C2E
4	D	814	3PE	C23-C24-C25-C26
2	A	801	IHP	C2-O12-P2-O22
4	A	808	3PE	C3D-C3E-C3F-C3G
4	D	814	3PE	O21-C21-C22-C23
4	D	809	3PE	C2D-C2E-C2F-C2G
4	D	802	3PE	O31-C31-C32-C33
4	A	803	3PE	C3B-C3C-C3D-C3E
4	A	817	3PE	O31-C31-C32-C33
5	D	815	PLM	C8-C9-CA-CB
4	A	808	3PE	C2E-C2F-C2G-C2H
4	A	803	3PE	O11-C1-C2-O21
4	A	808	3PE	O21-C21-C22-C23
4	A	817	3PE	O21-C2-C3-O31
2	A	801	IHP	C2-O12-P2-O32
2	A	801	IHP	C2-O12-P2-O42
2	D	801	IHP	C1-C2-O12-P2
2	D	801	IHP	C2-O12-P2-O32
2	D	801	IHP	C3-O13-P3-O33
3	A	802	CLR	C16-C17-C20-C22
3	D	812	CLR	C16-C17-C20-C22
4	A	808	3PE	O22-C21-C22-C23
4	A	808	3PE	C2D-C2E-C2F-C2G
3	D	812	CLR	C13-C17-C20-C21
4	A	817	3PE	O32-C31-C32-C33
3	A	802	CLR	C13-C17-C20-C21
3	D	808	CLR	C23-C24-C25-C26
4	D	814	3PE	C21-C22-C23-C24
4	A	803	3PE	C2A-C2B-C2C-C2D
4	D	809	3PE	C11-O13-P-O12
4	D	814	3PE	C1-O11-P-O12
4	A	803	3PE	C23-C24-C25-C26
4	D	802	3PE	O32-C31-C32-C33
4	D	809	3PE	C1-C2-O21-C21
4	D	814	3PE	O22-C21-C22-C23
4	A	817	3PE	C25-C26-C27-C28
5	A	809	PLM	C1-C2-C3-C4
4	A	803	3PE	O31-C31-C32-C33
5	A	809	PLM	C4-C5-C6-C7

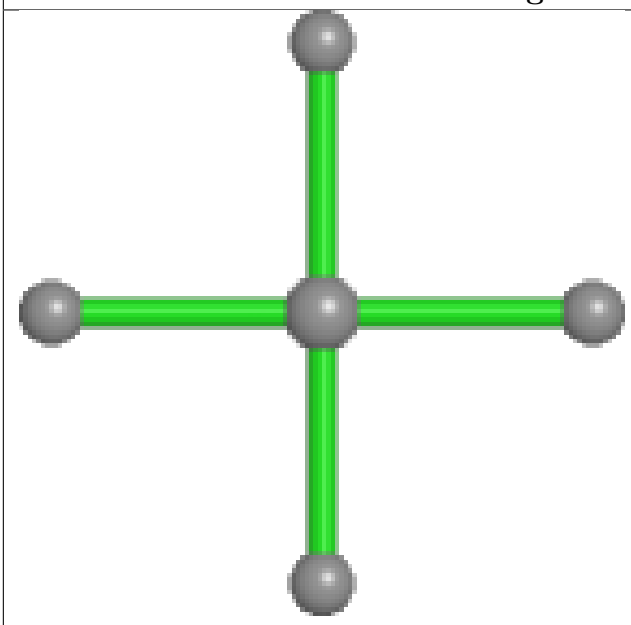
There are no ring outliers.

15 monomers are involved in 29 short contacts:

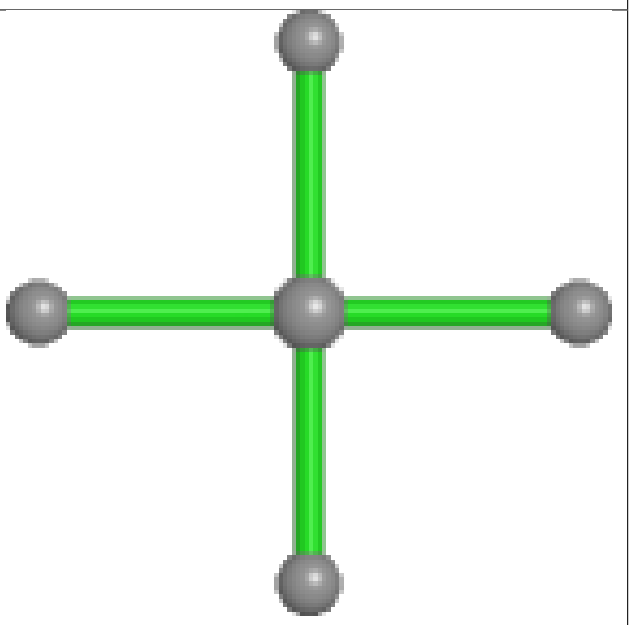
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	810	CLR	2	0
4	A	817	3PE	2	0
3	D	812	CLR	1	0
2	D	801	IHP	5	0
3	D	816	CLR	1	0
3	A	806	CLR	3	0
4	A	803	3PE	1	0
4	D	814	3PE	4	0
3	A	802	CLR	2	0
4	D	802	3PE	3	0
4	D	809	3PE	4	0
5	D	815	PLM	1	0
4	A	808	3PE	1	0
2	A	801	IHP	1	0
5	A	809	PLM	1	0

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.

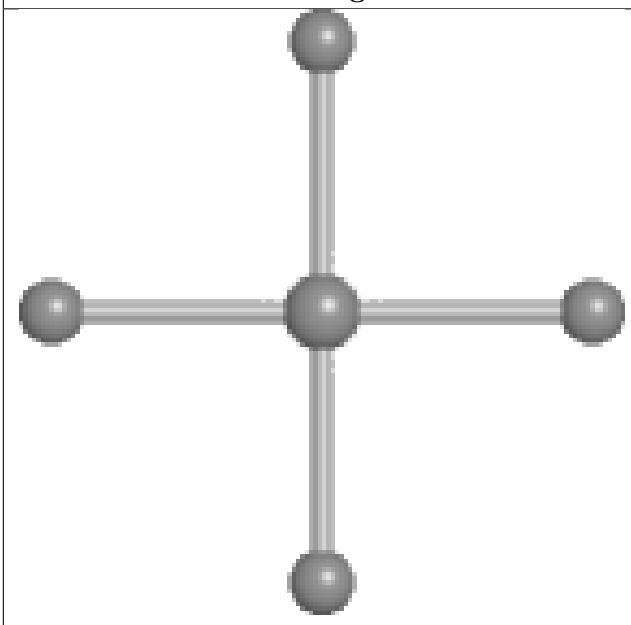
Ligand PO4 A 815



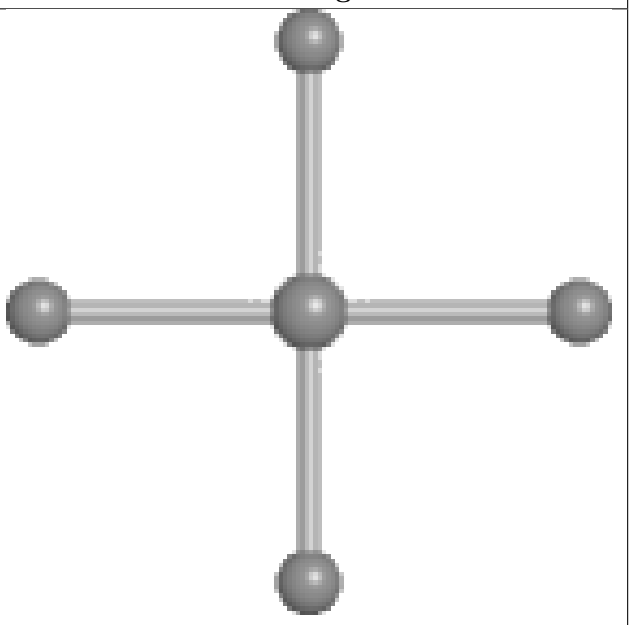
Bond lengths



Bond angles

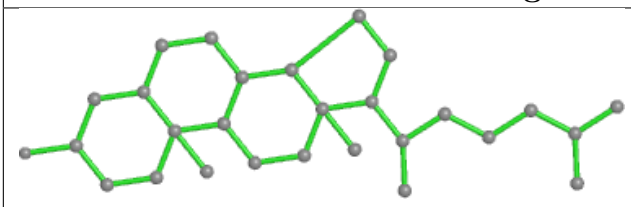


Torsions

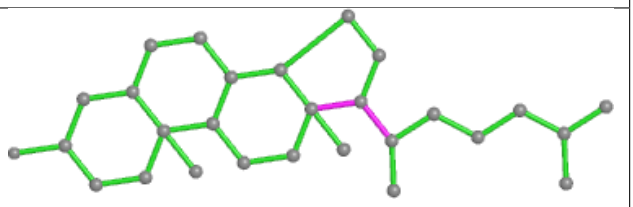


Rings

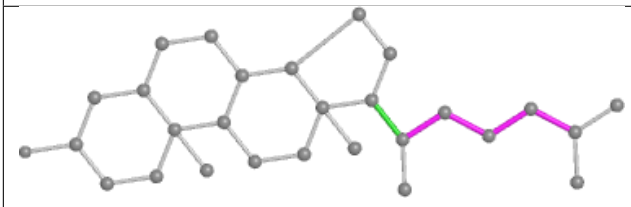
Ligand CLR A 805



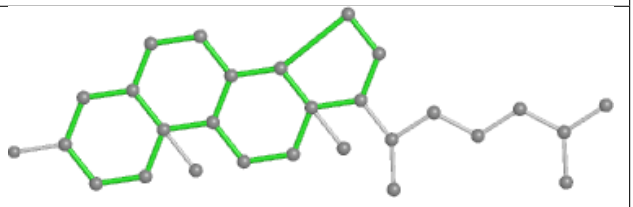
Bond lengths



Bond angles

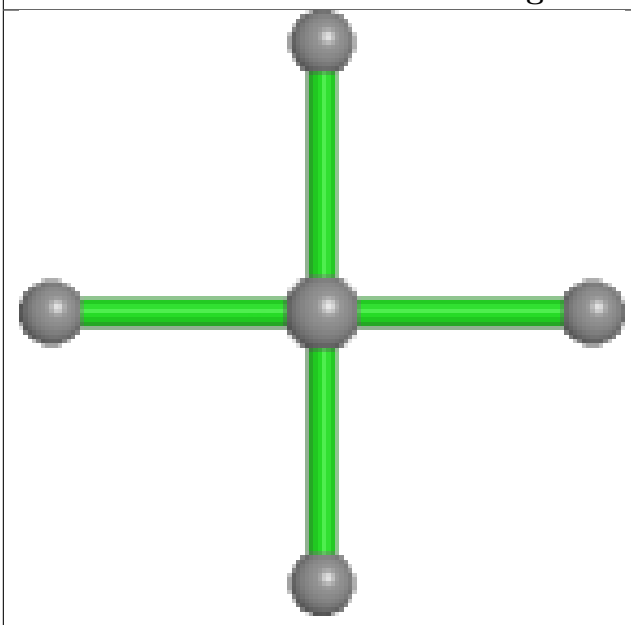


Torsions



Rings

Ligand PO4 A 816



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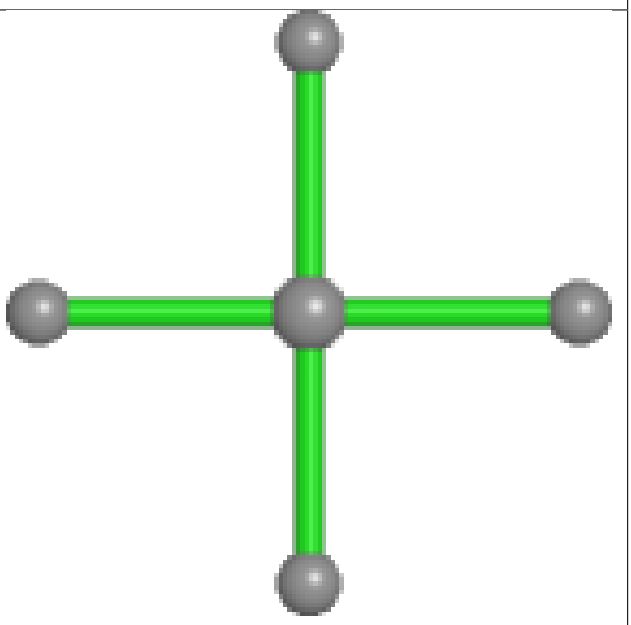
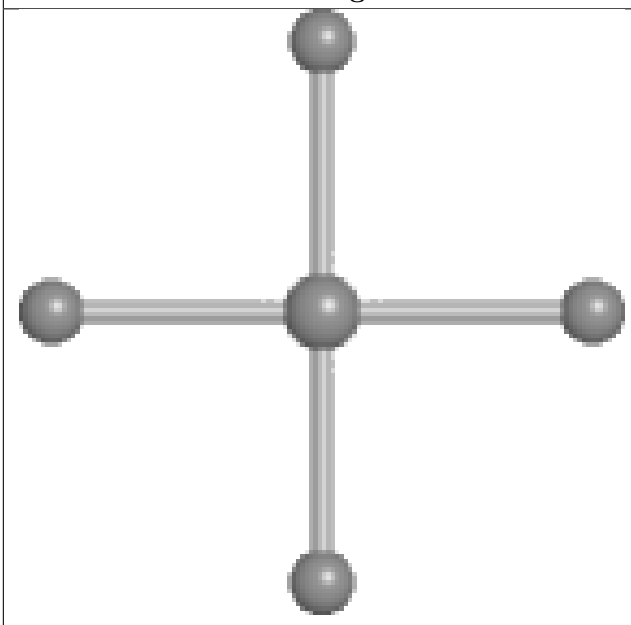
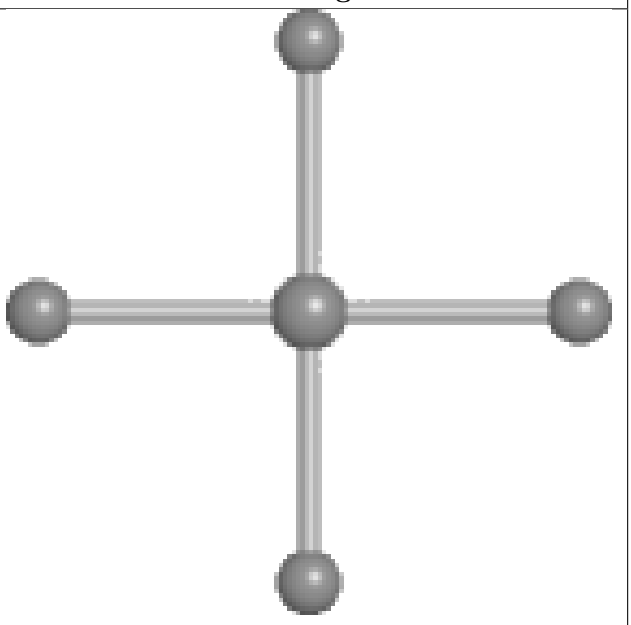


Bond angles

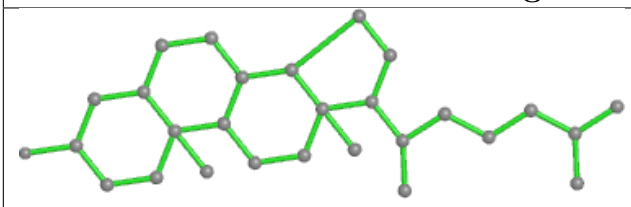


Torsions



Rings

Ligand CLR A 810



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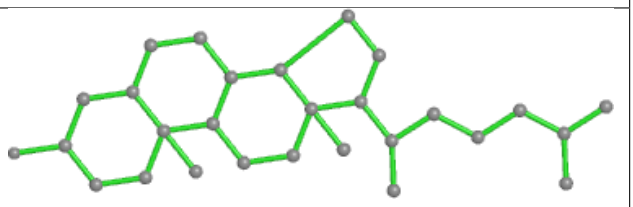
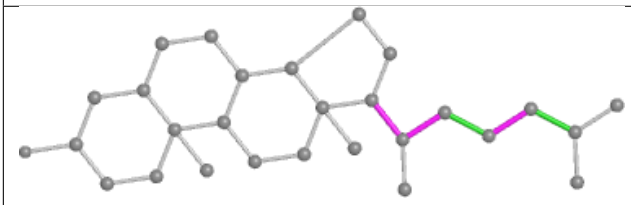
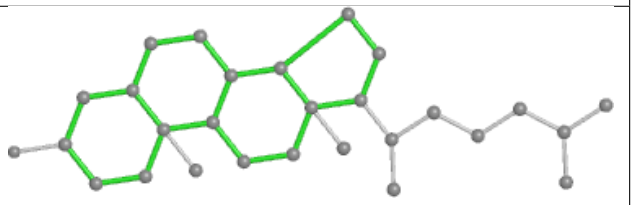


Bond angles

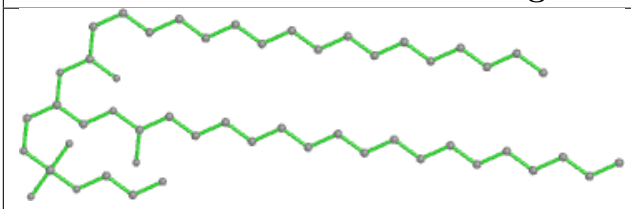


Torsions



Rings

Ligand 3PE A 817



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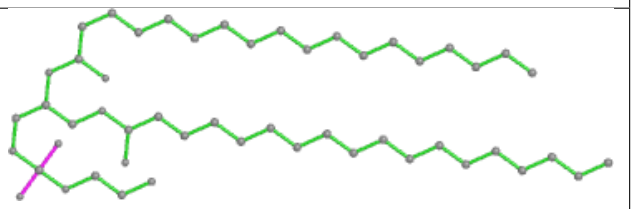
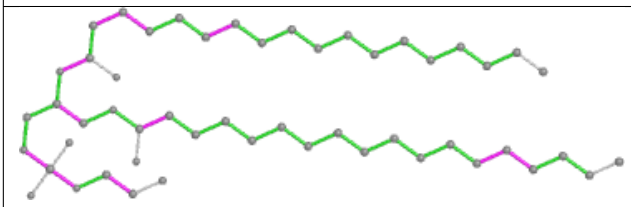
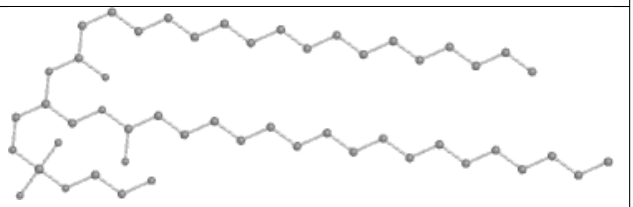


Bond angles

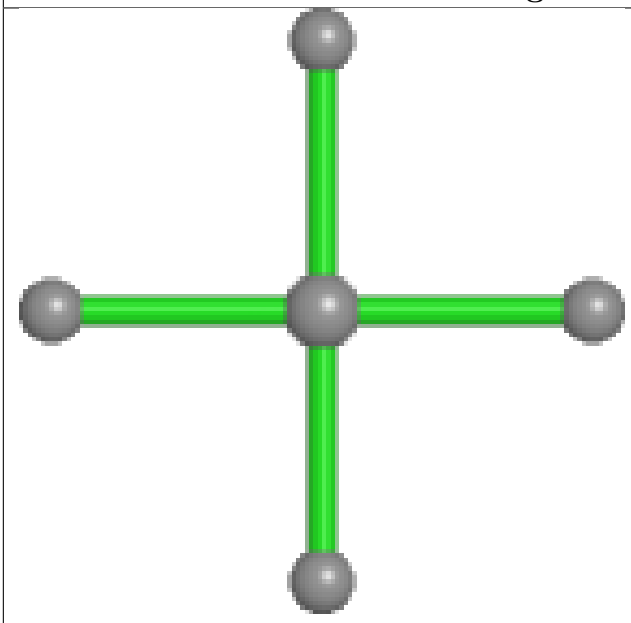


Torsions



Rings

Ligand PO4 A 812



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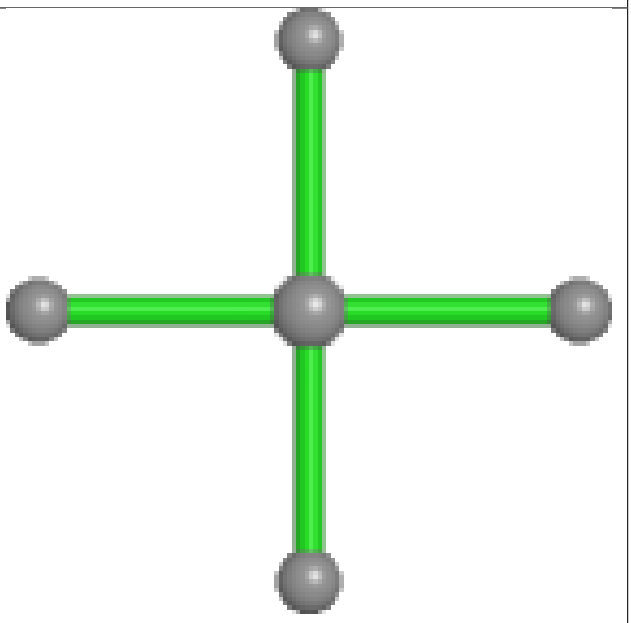
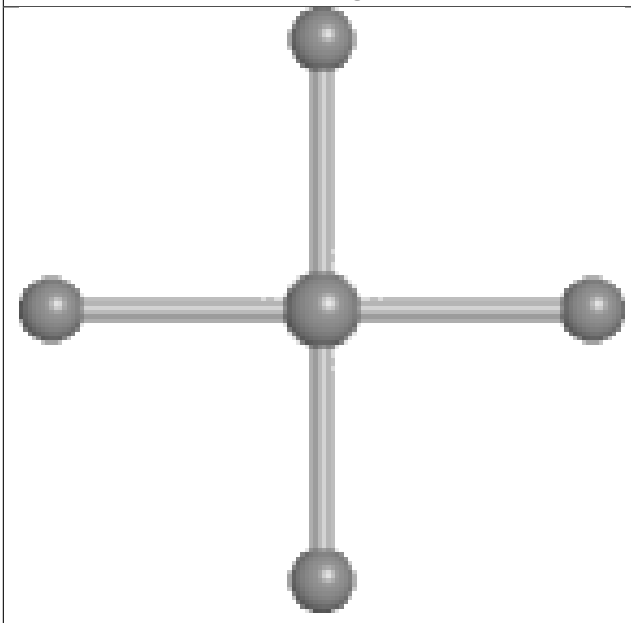


Bond angles



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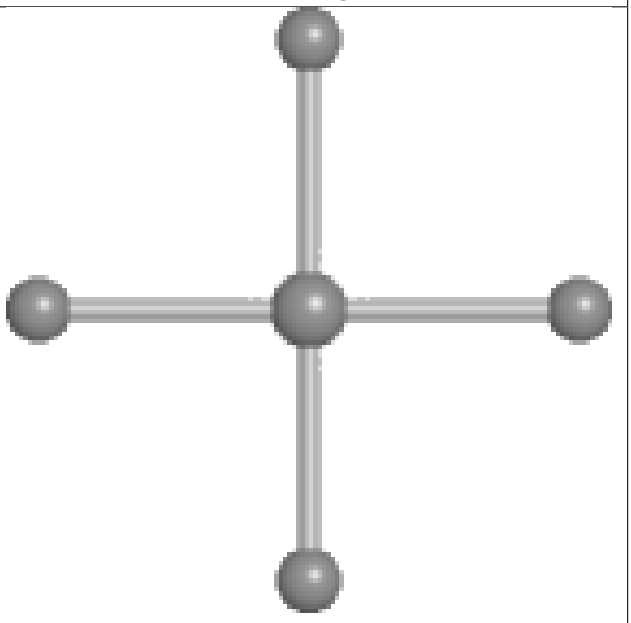
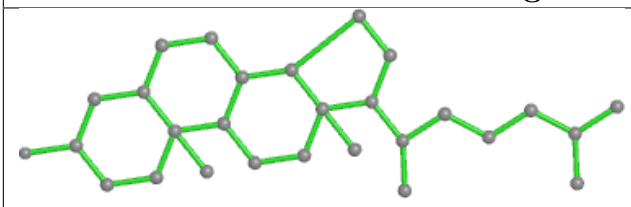


Rings

Ligand CLR D 812



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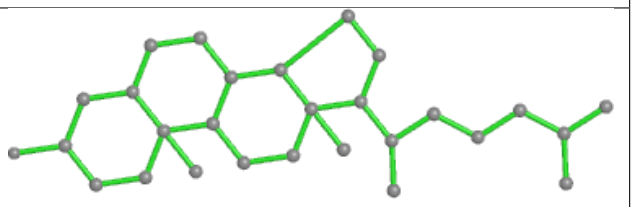
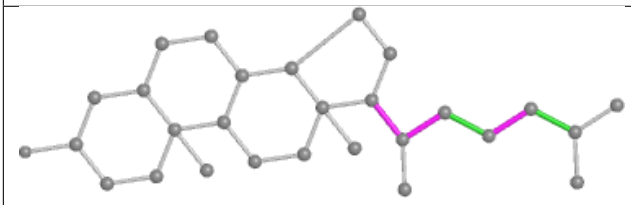


Bond angles



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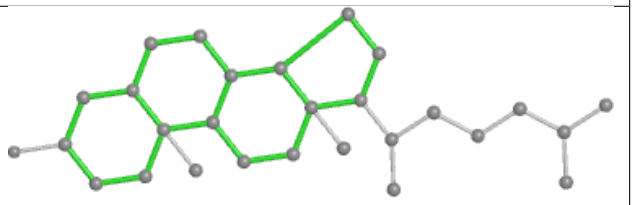
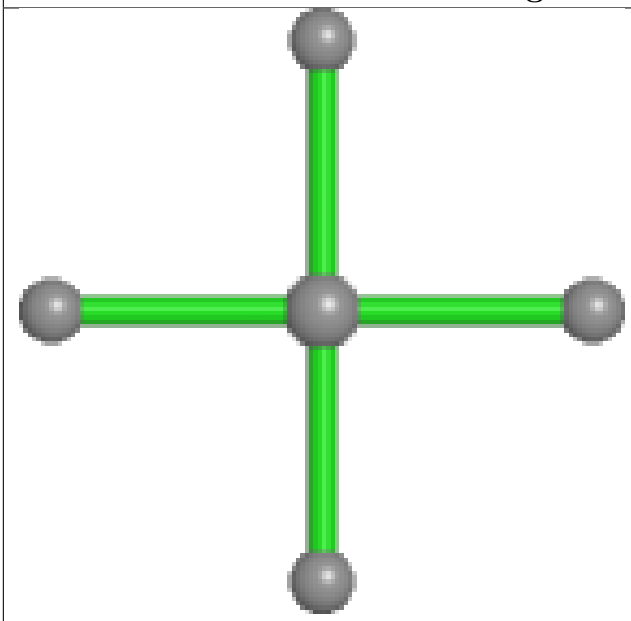


Rings

Ligand PO4 D 805



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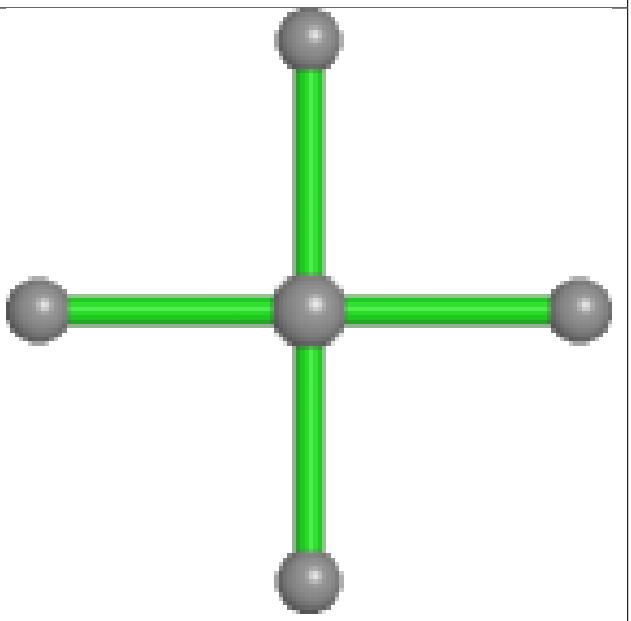
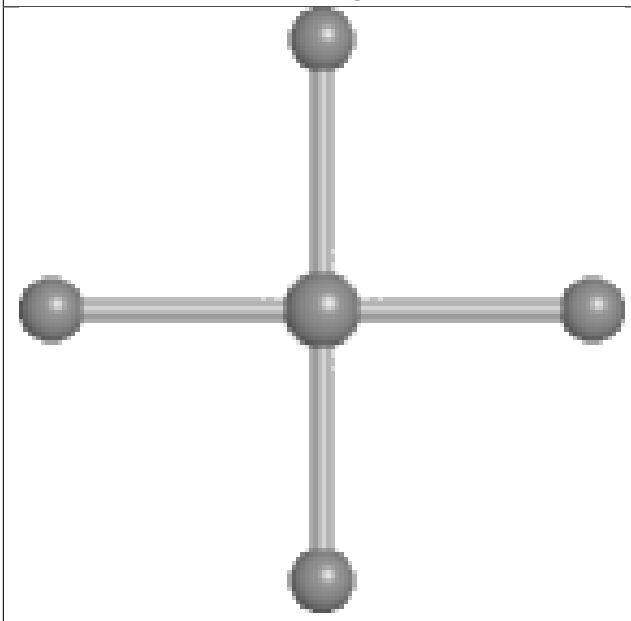
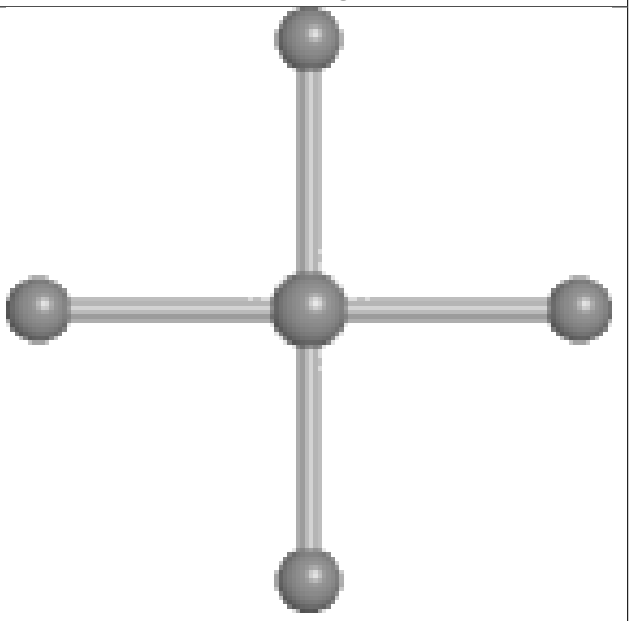


Bond angles

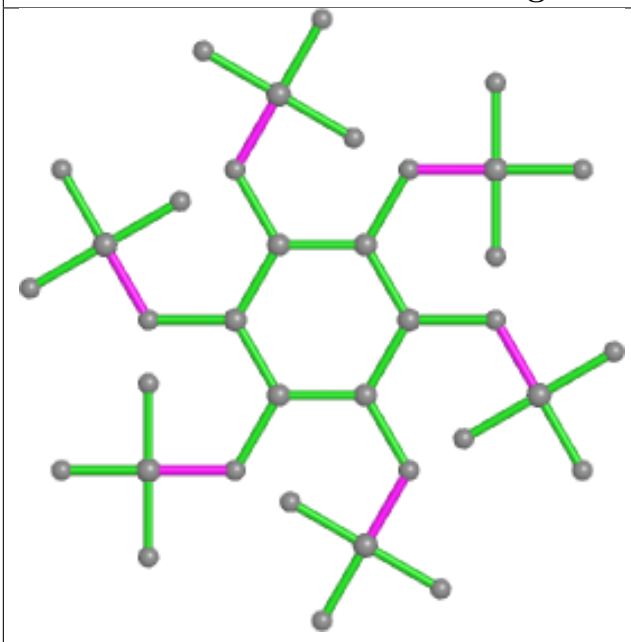


Torsions



Rings

Ligand IHP D 801



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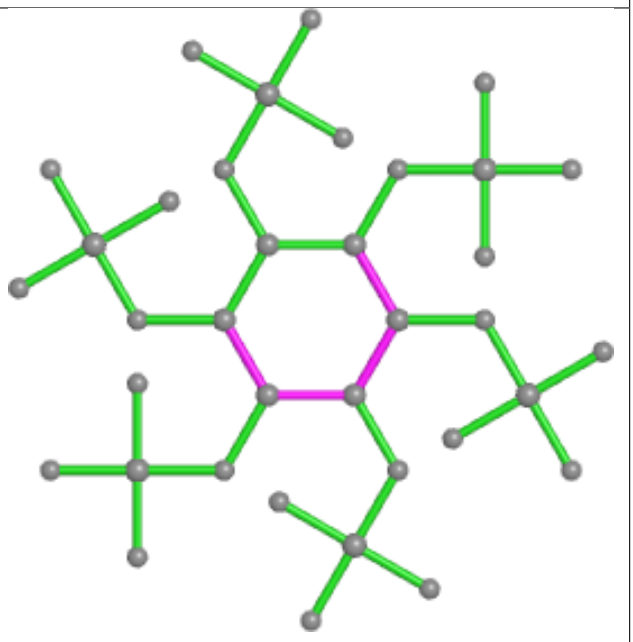
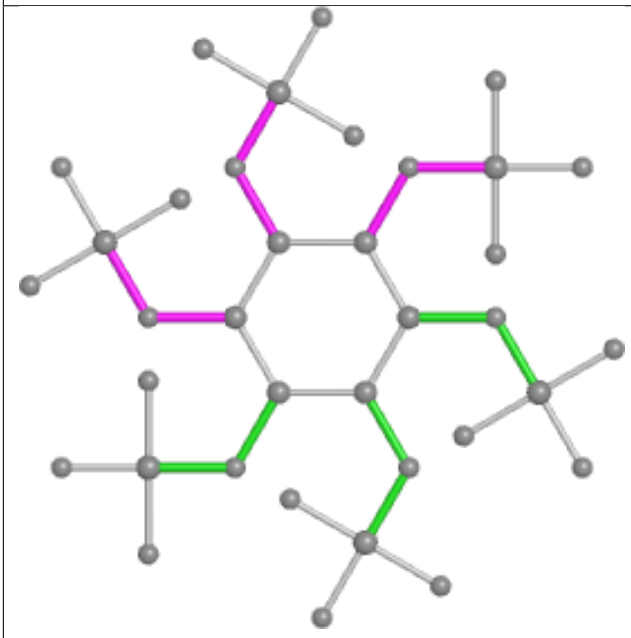
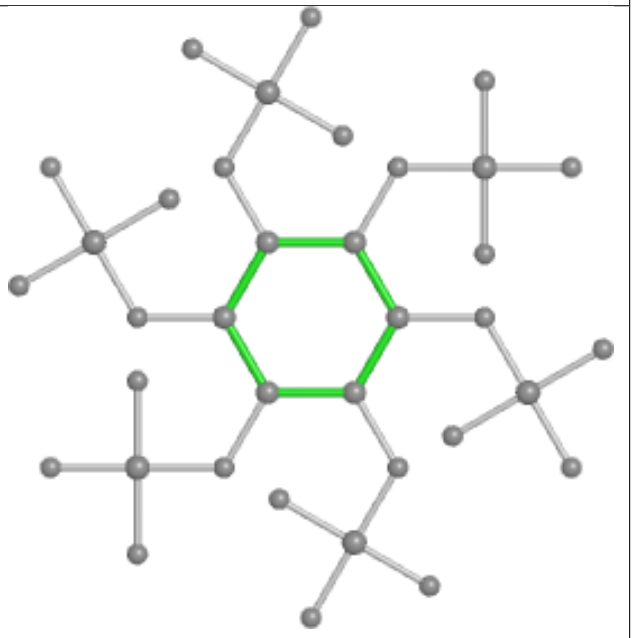


Bond angles

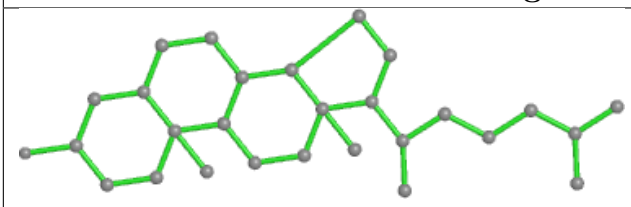


Torsions

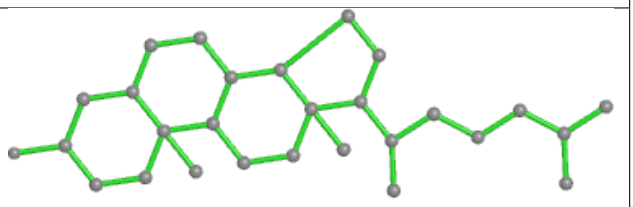


Rings

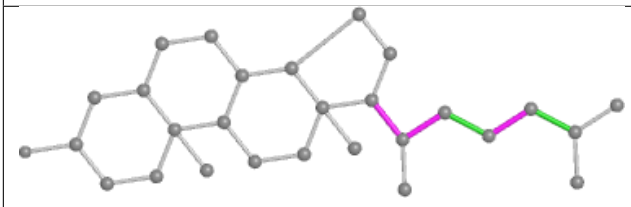
Ligand CLR D 816



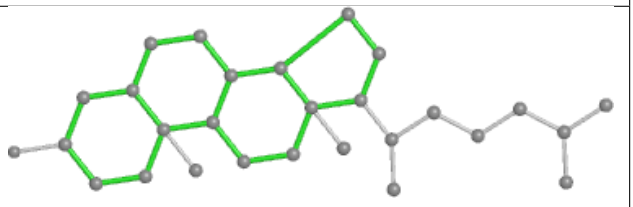
Bond lengths



Bond angles

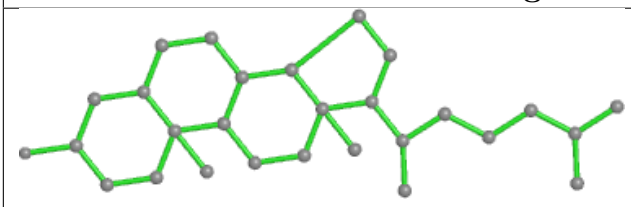


Torsions

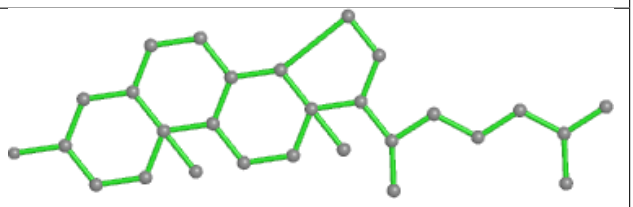


Rings

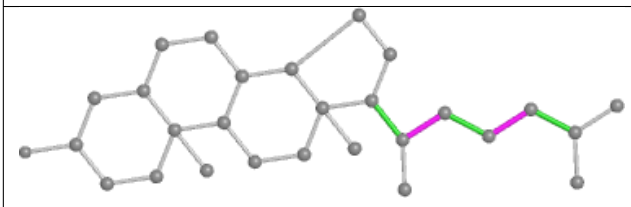
Ligand CLR A 806



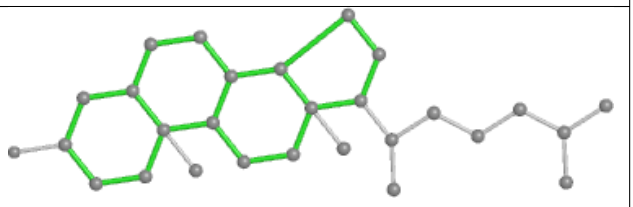
Bond lengths



Bond angles

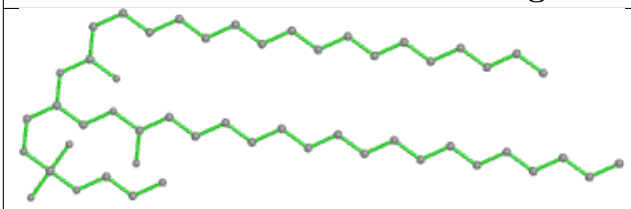


Torsions



Rings

Ligand 3PE A 803



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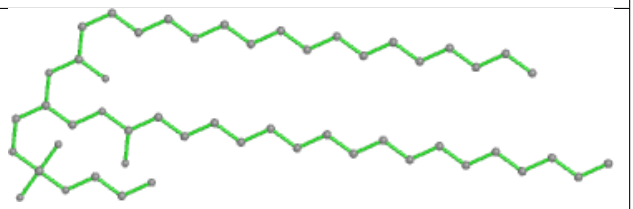
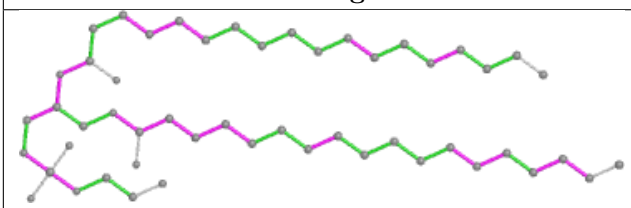
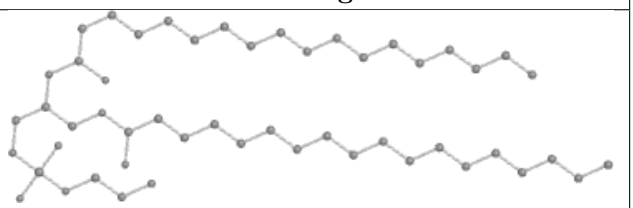


Bond angles

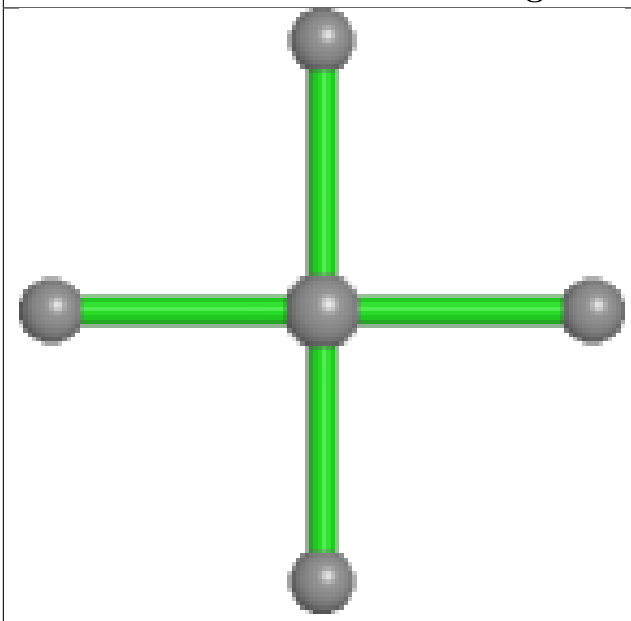


Torsions

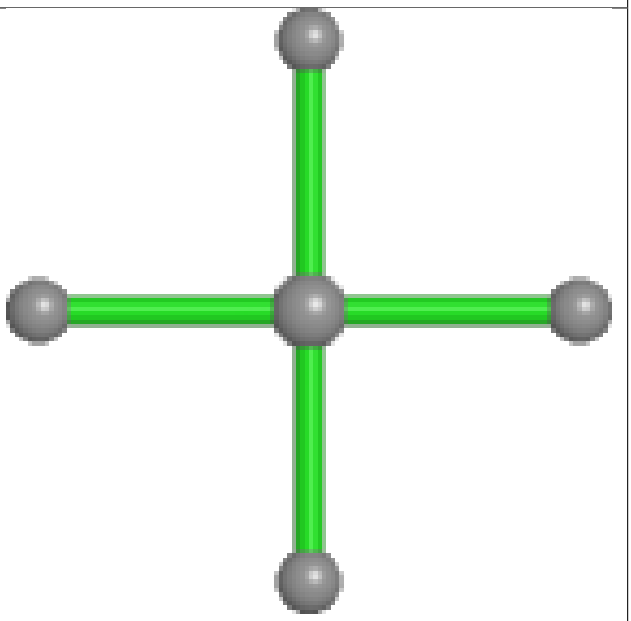


Rings

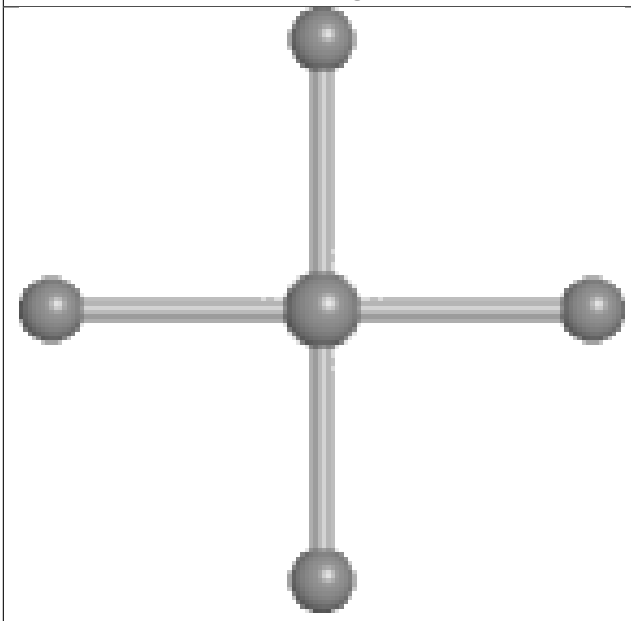
Ligand PO4 D 803



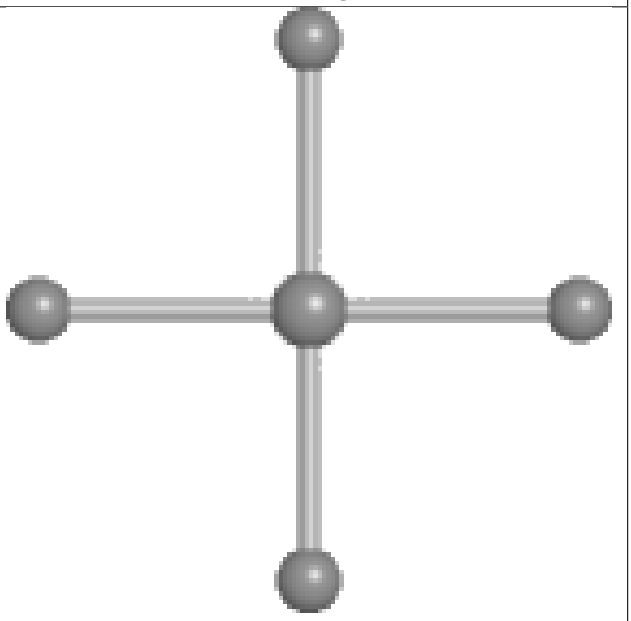
Bond lengths



Bond angles

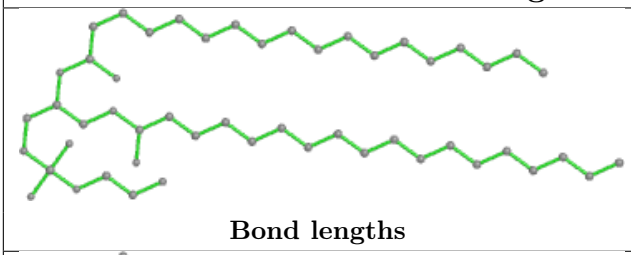


Torsions

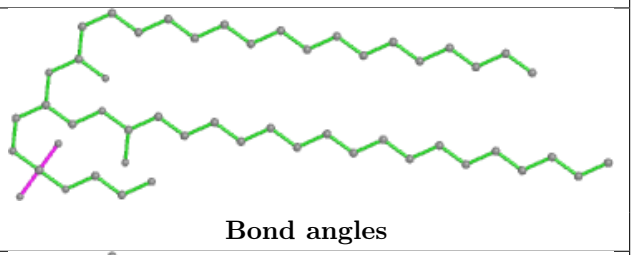


Rings

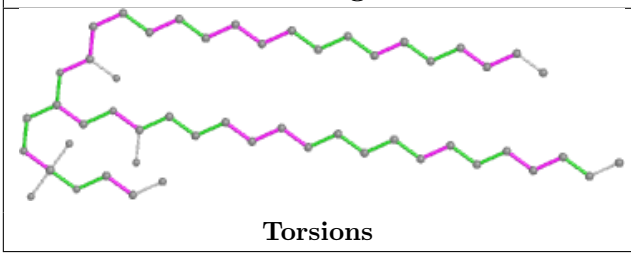
Ligand 3PE D 814



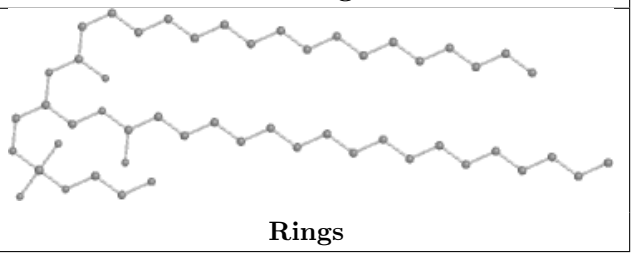
Bond lengths



Bond angles

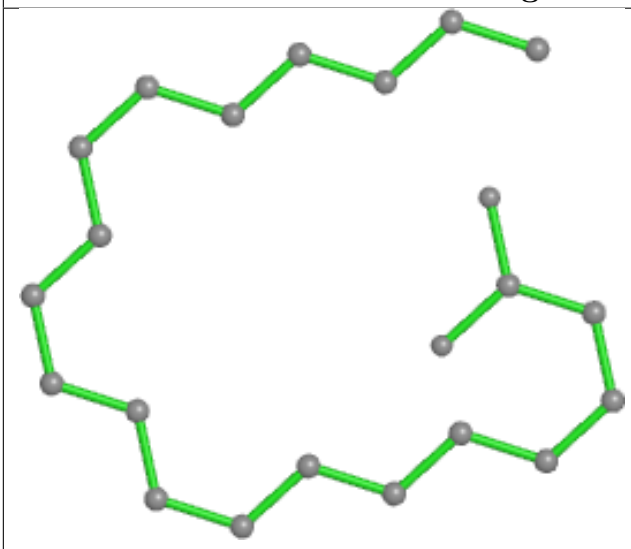


Torsions

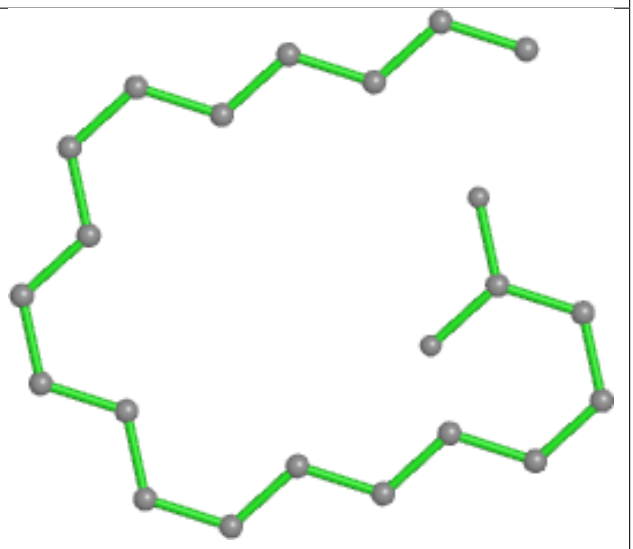


Rings

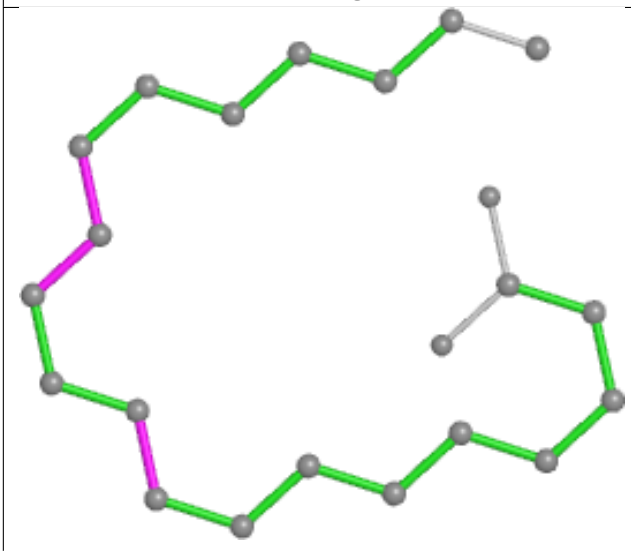
Ligand ACD A 811



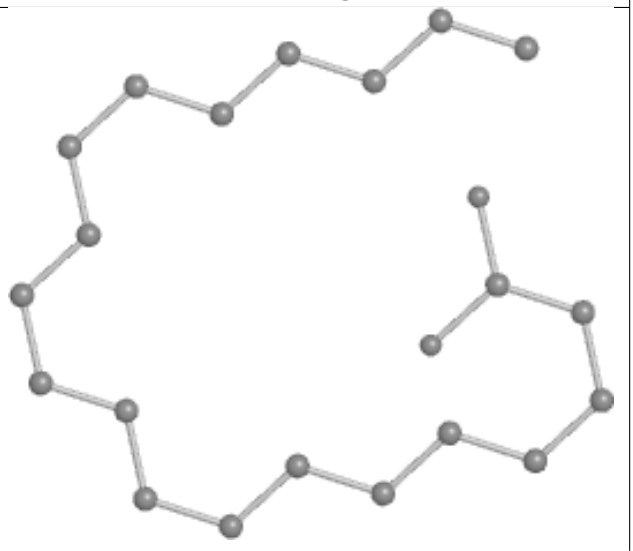
Bond lengths



Bond angles

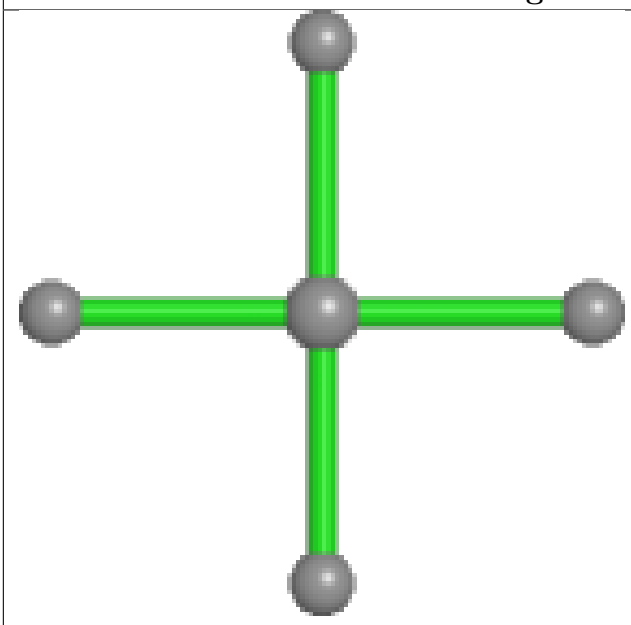


Torsions

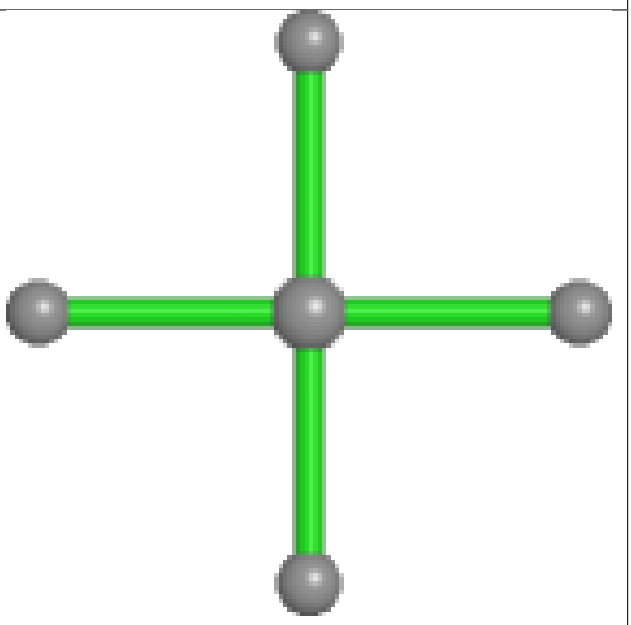


Rings

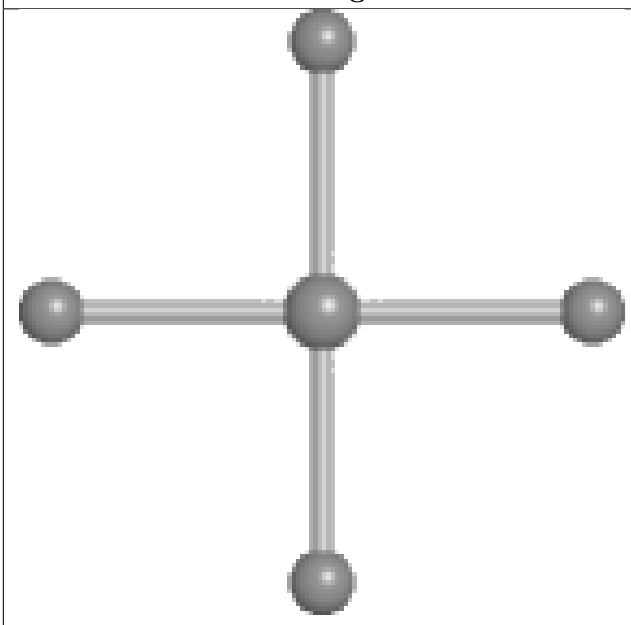
Ligand PO4 D 807



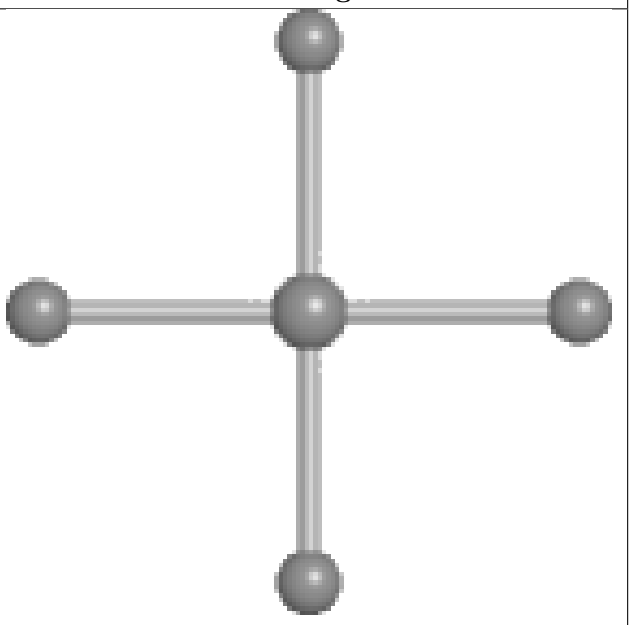
Bond lengths



Bond angles

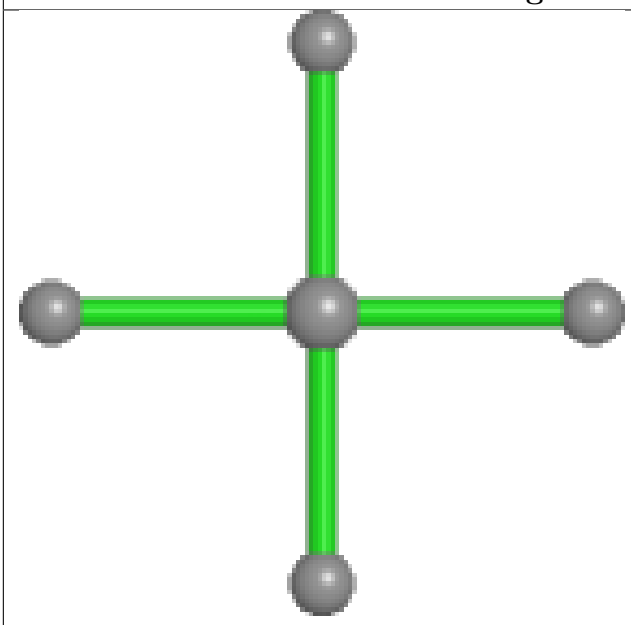


Torsions

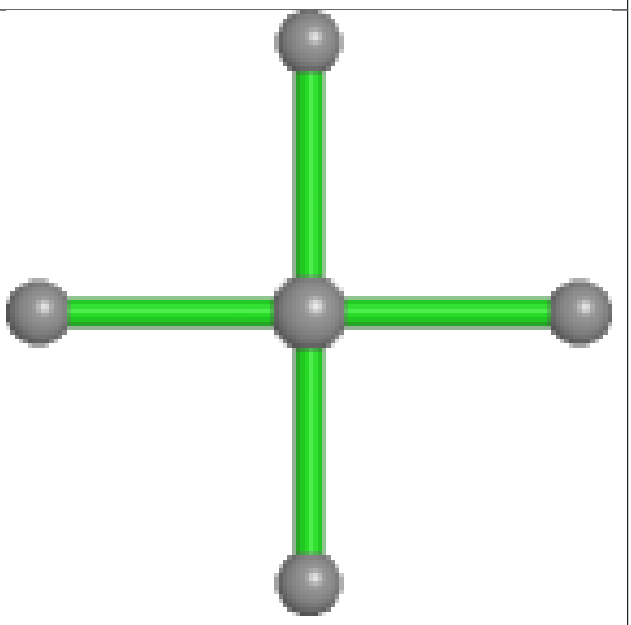


Rings

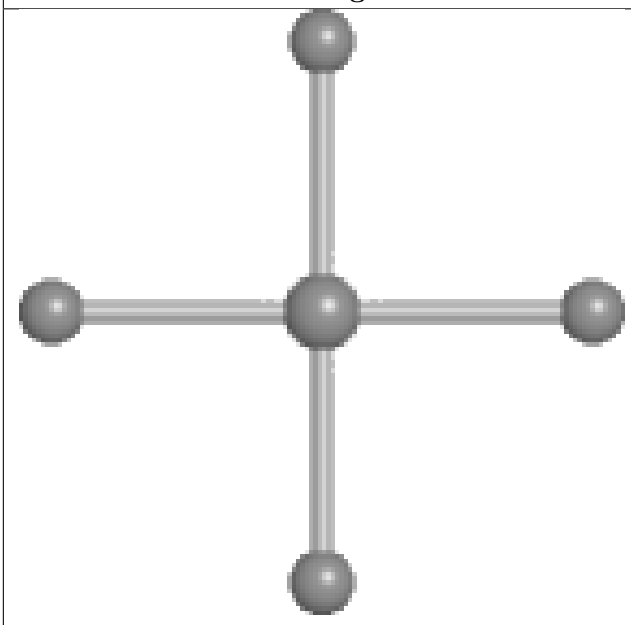
Ligand PO4 D 806



Bond lengths



Bond angles



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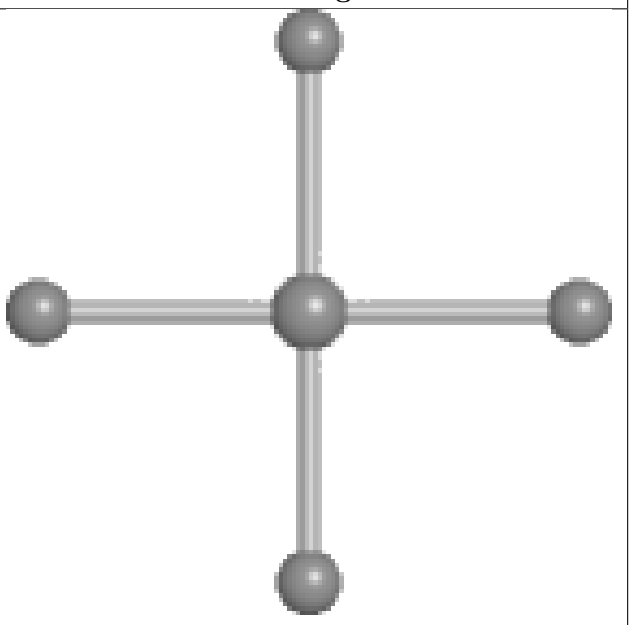
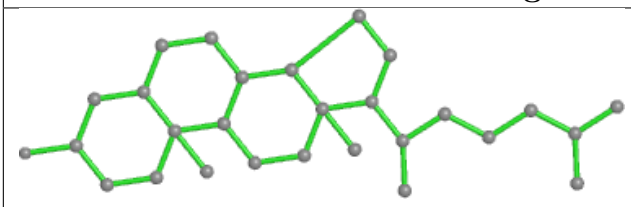


Rings

Ligand CLR D 808



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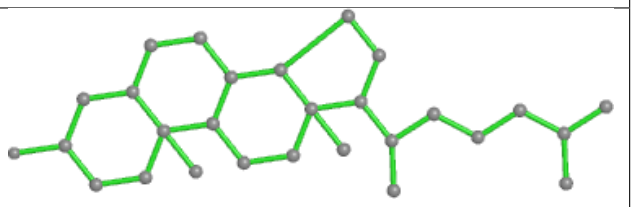
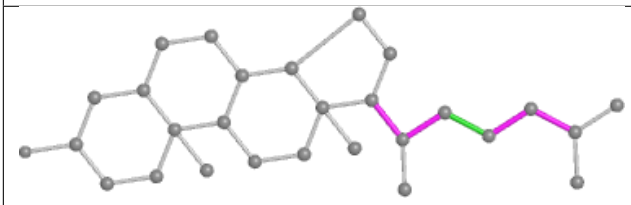
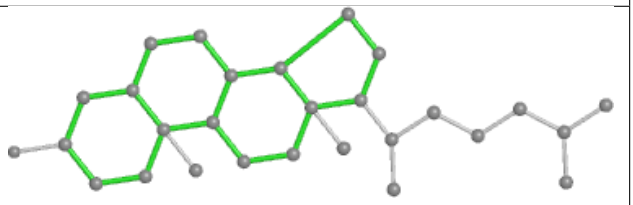


Bond angles

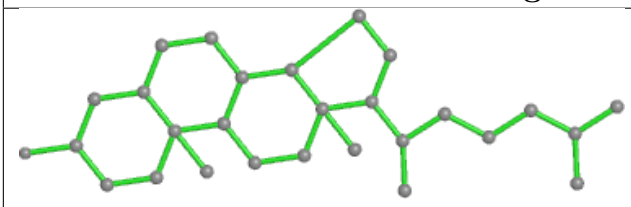


Torsions

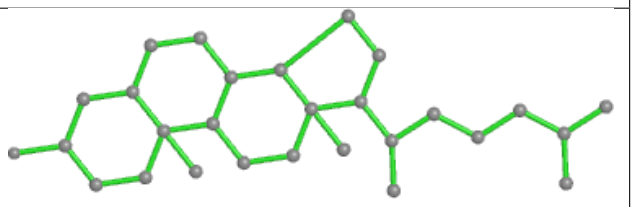


Rings

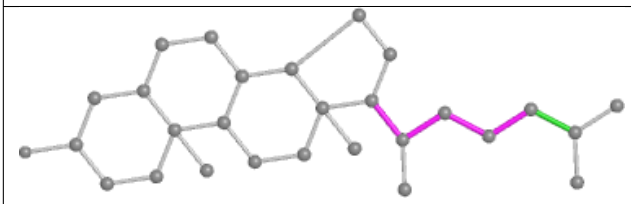
Ligand CLR A 802



Bond lengths



Bond angles



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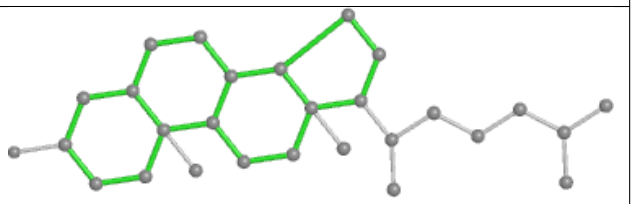
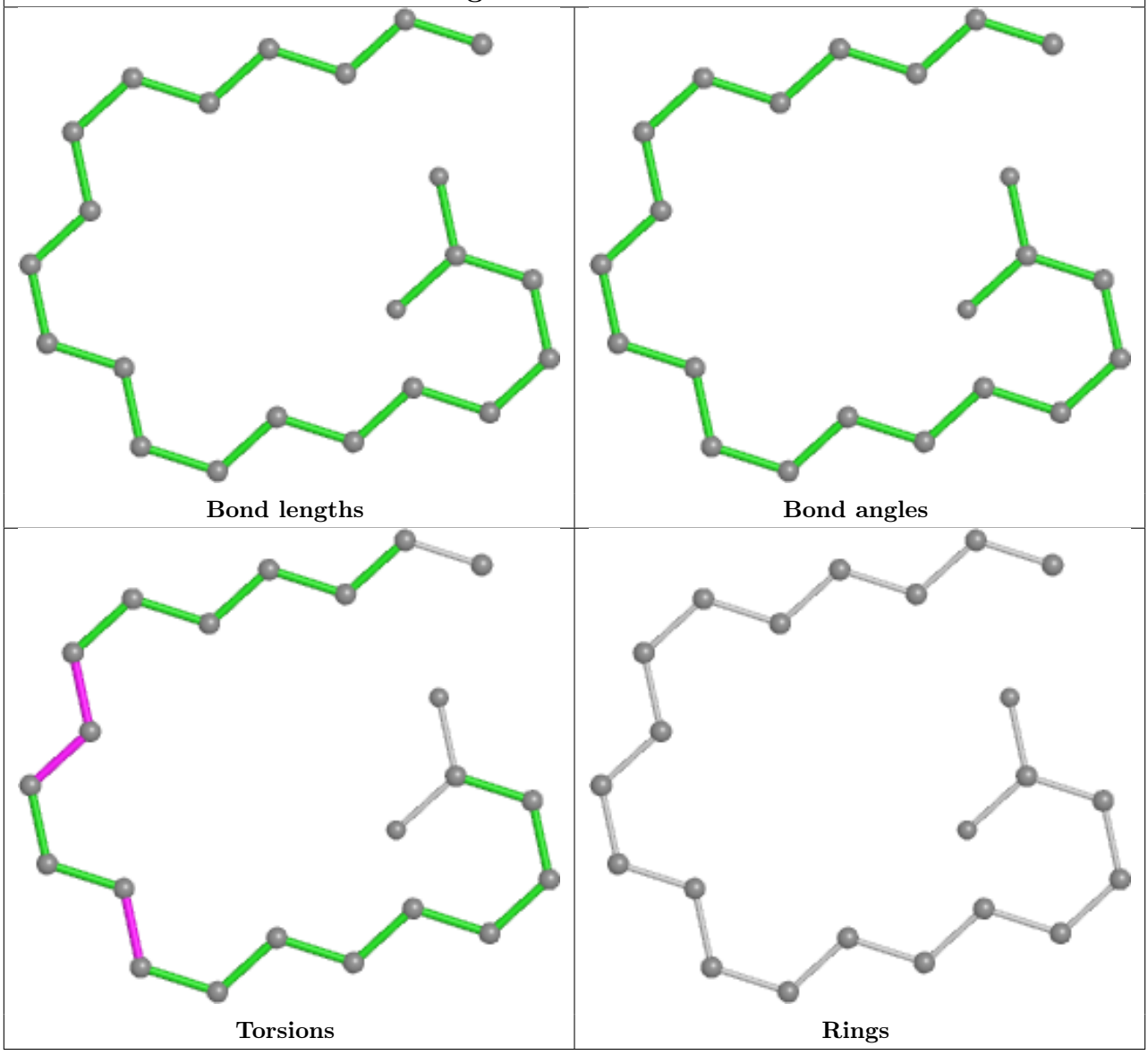
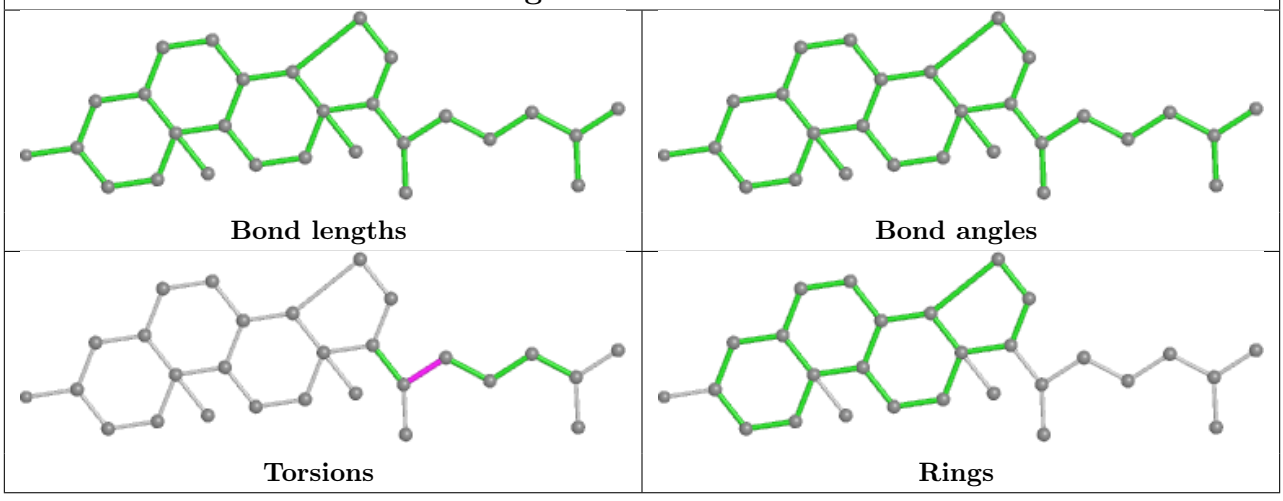


Rings

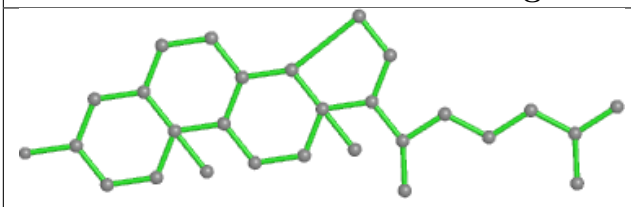
Ligand ACD D 817



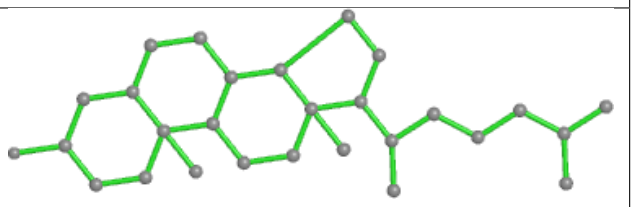
Ligand CLR A 804



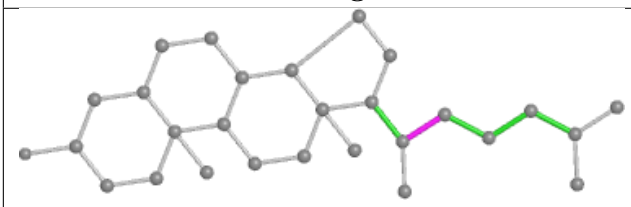
Ligand CLR D 810



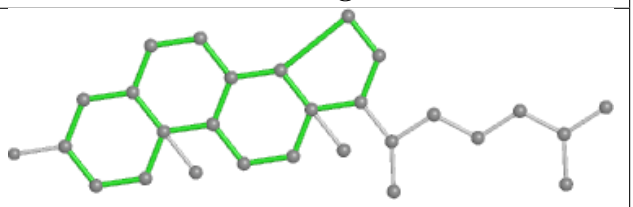
Bond lengths



Bond angles

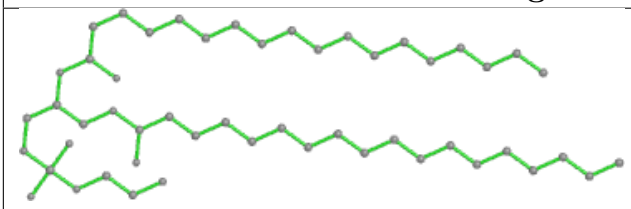


Torsions

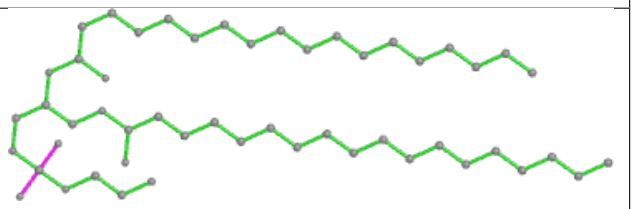


Rings

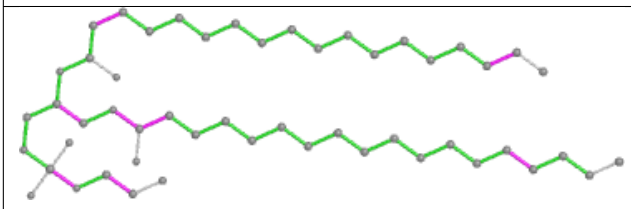
Ligand 3PE D 802



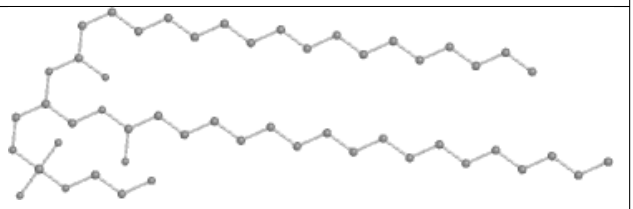
Bond lengths



Bond angles

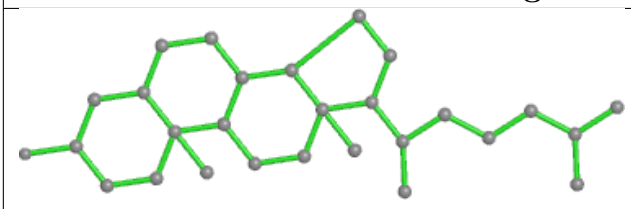


Torsions

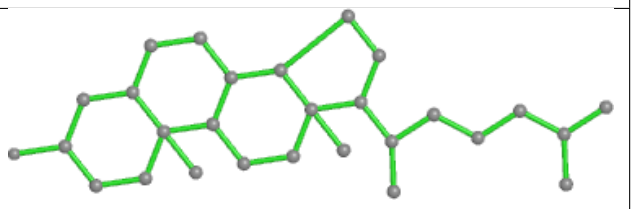


Rings

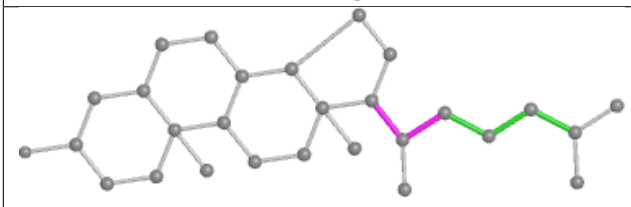
Ligand CLR A 807



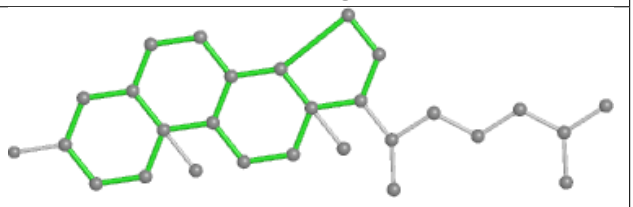
Bond lengths



Bond angles

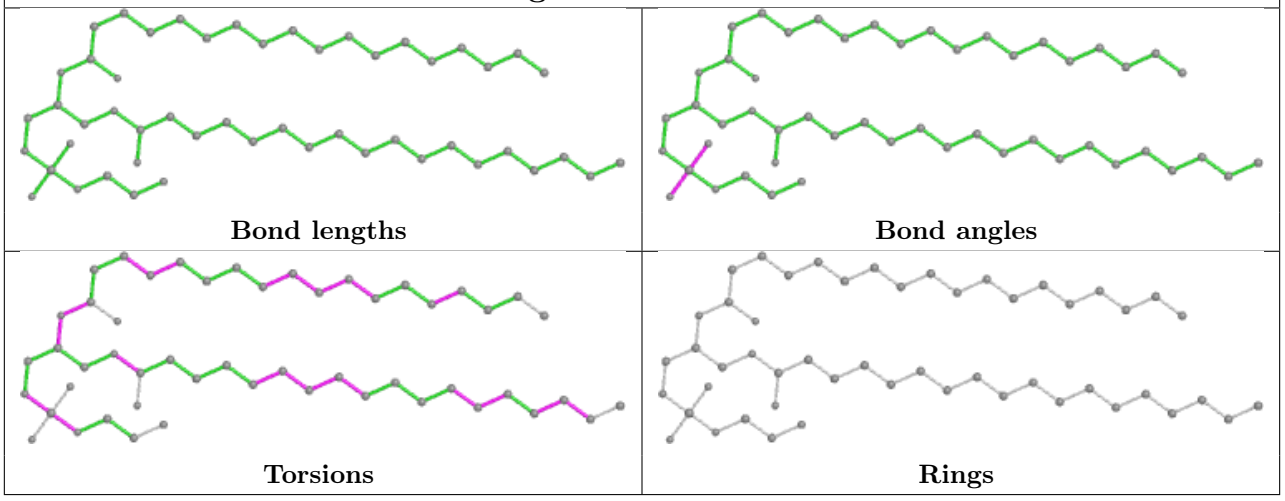


Torsions

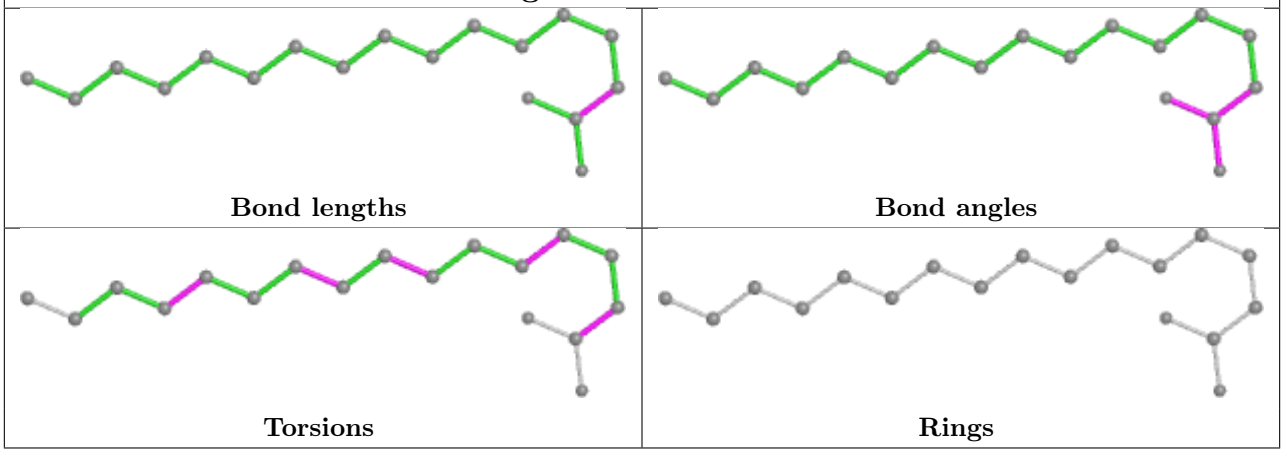


Rings

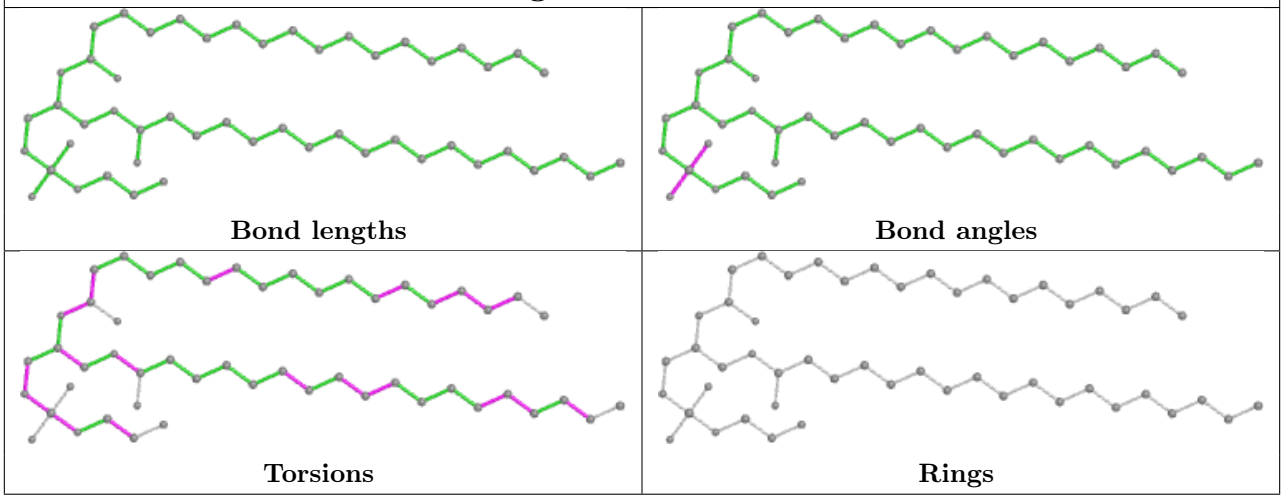
Ligand 3PE D 809



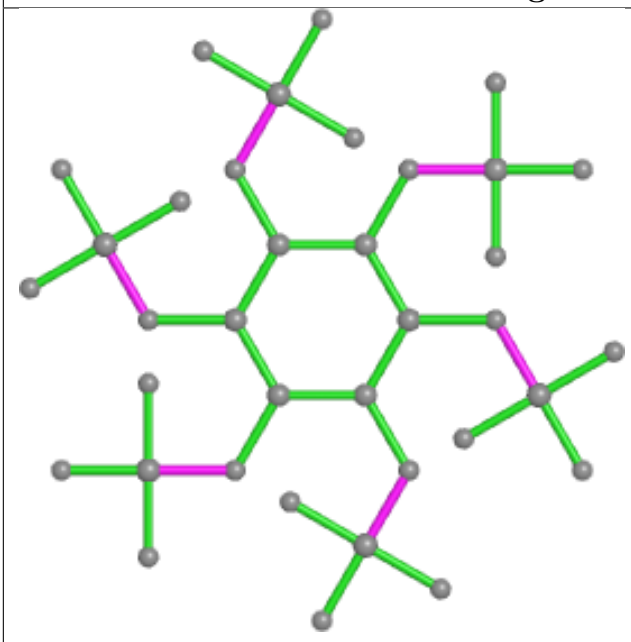
Ligand PLM D 815



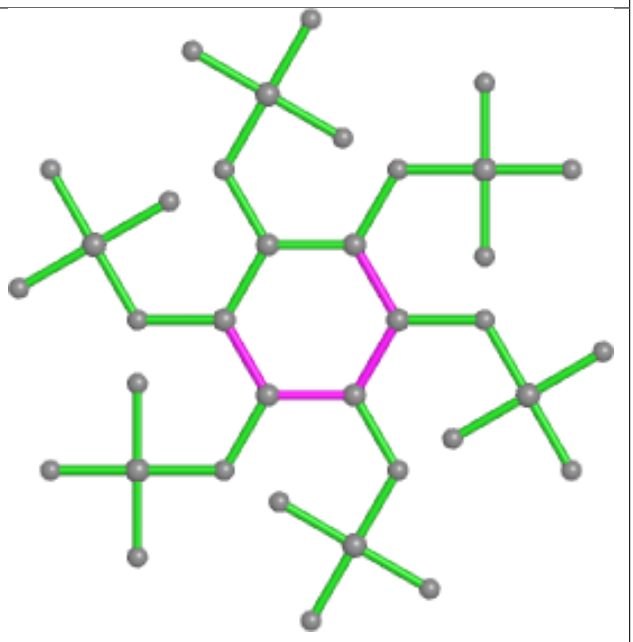
Ligand 3PE A 808



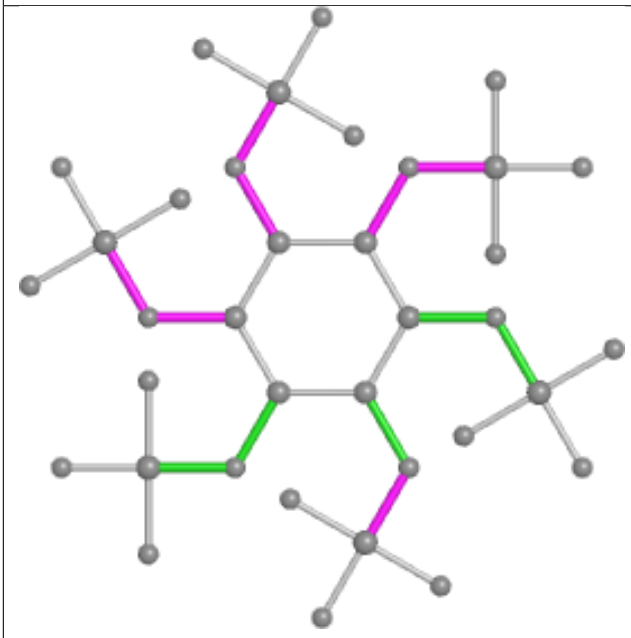
Ligand IHP A 801



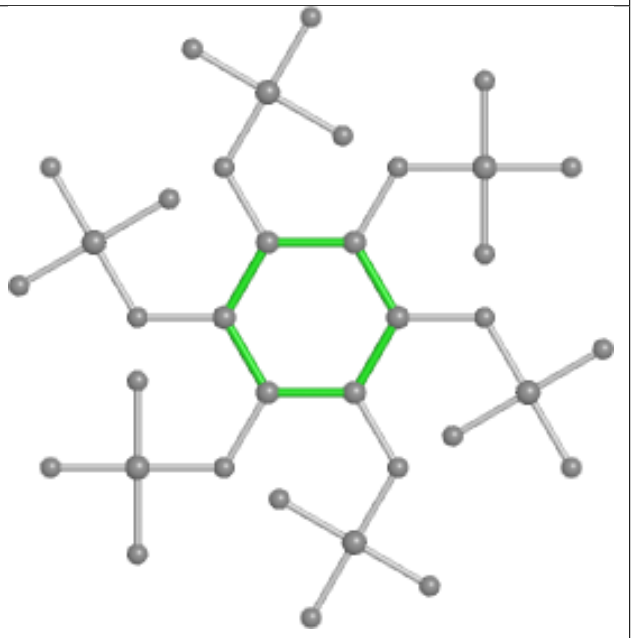
Bond lengths



Bond angles

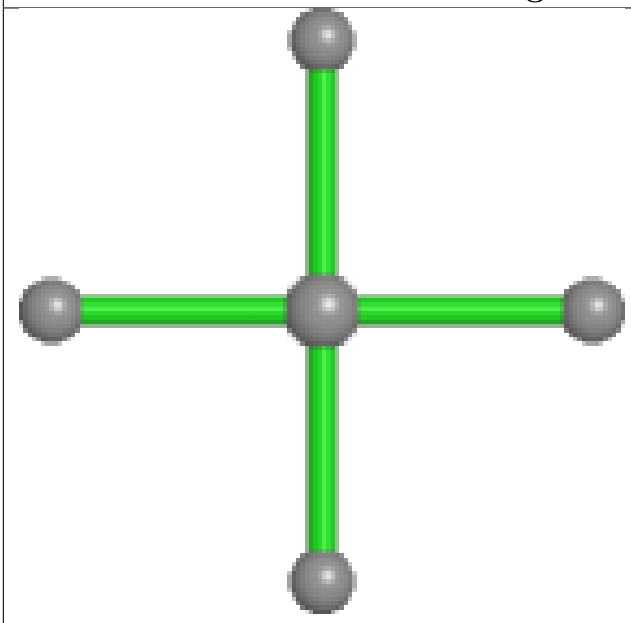


Torsions

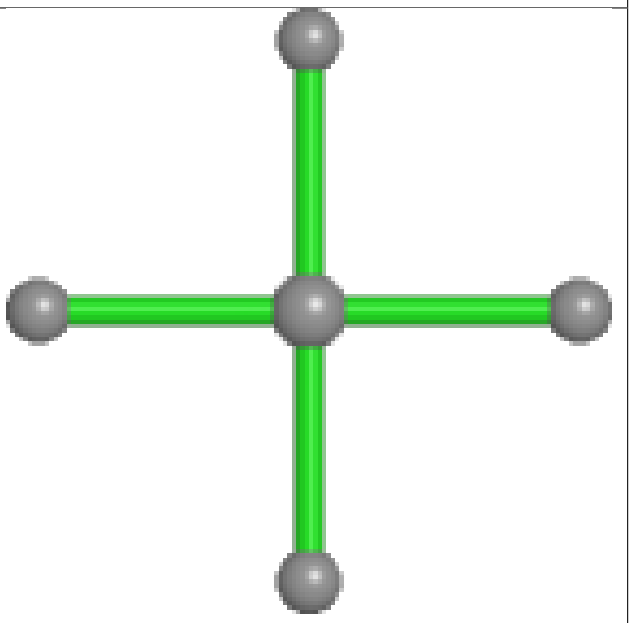


Rings

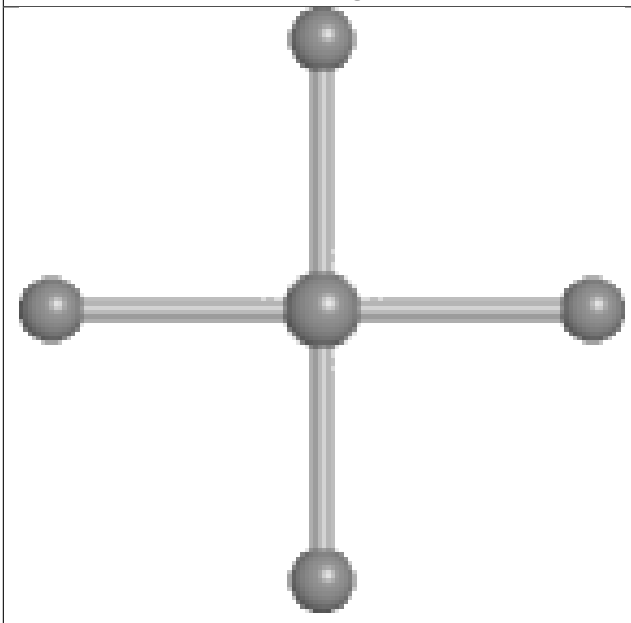
Ligand PO4 A 813



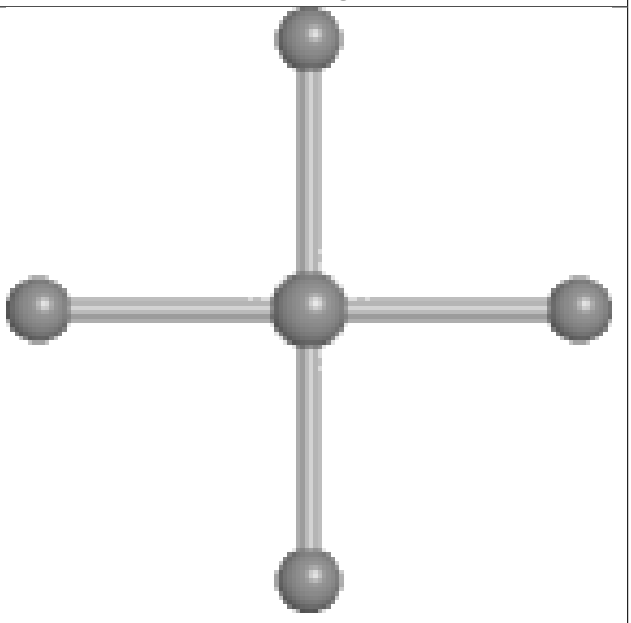
Bond lengths



Bond angles

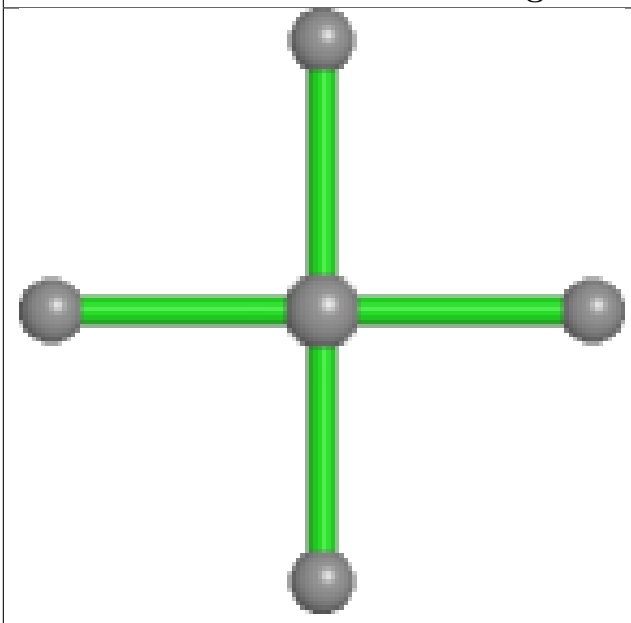


Torsions

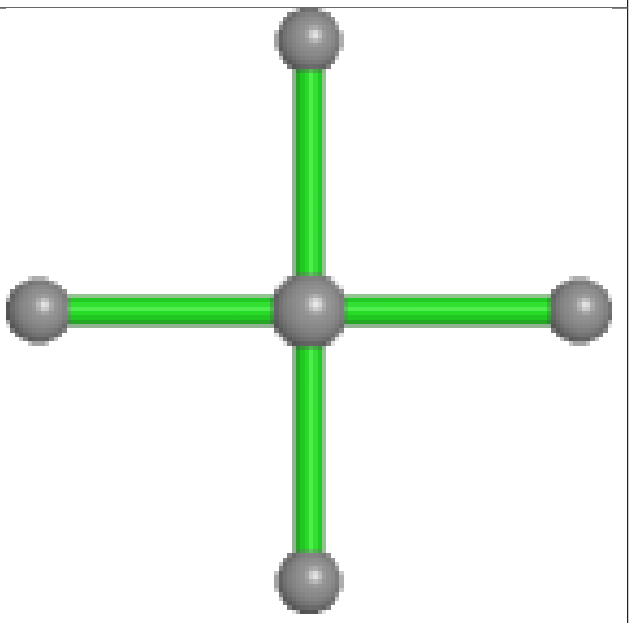


Rings

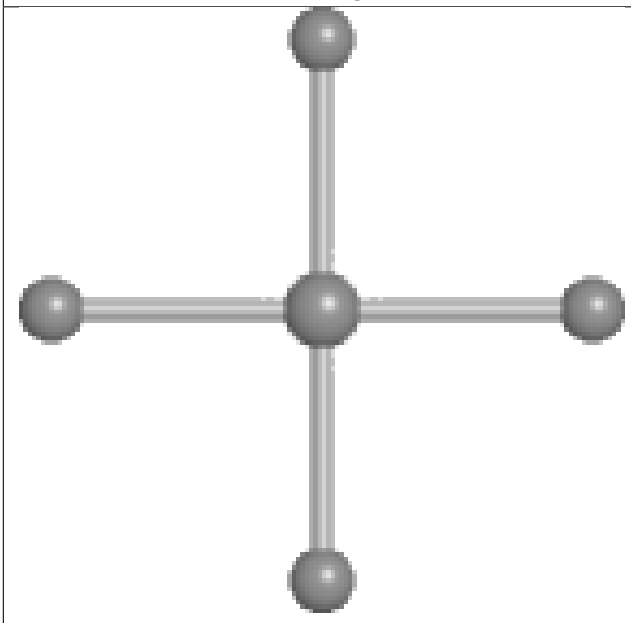
Ligand PO4 A 814



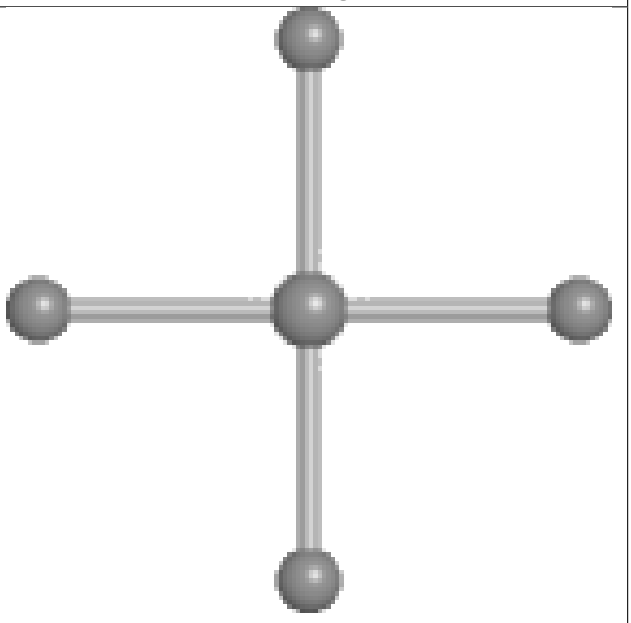
Bond lengths



Bond angles

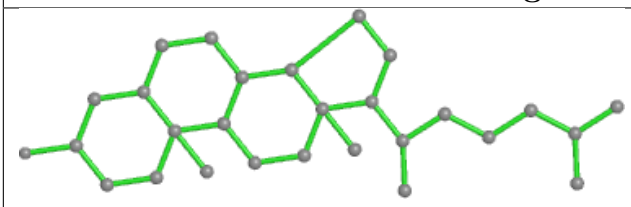


Torsions

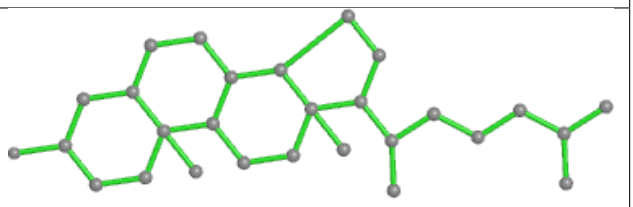


Rings

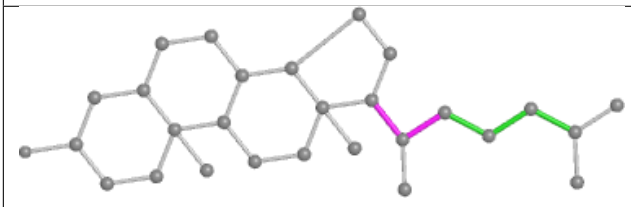
Ligand CLR D 813



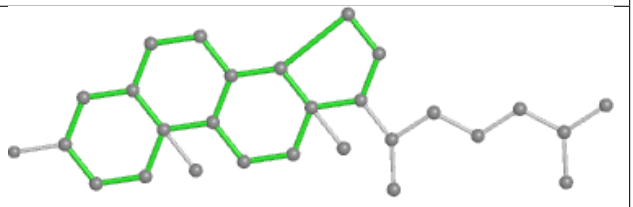
Bond lengths



Bond angles

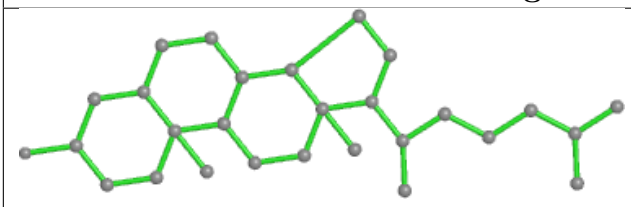


Torsions

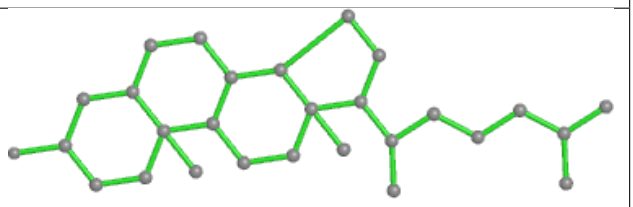


Rings

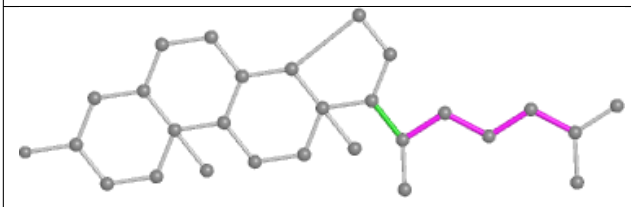
Ligand CLR D 811



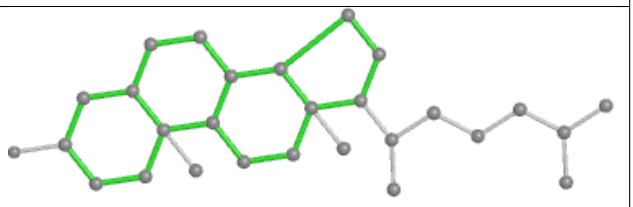
Bond lengths



Bond angles

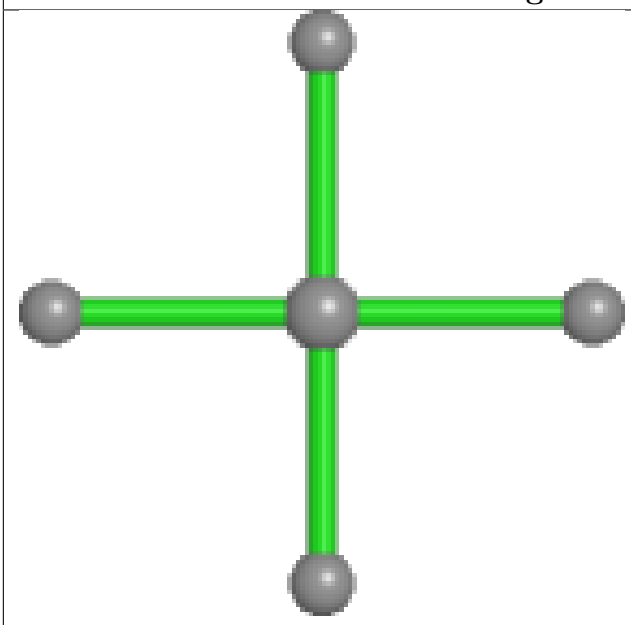


Torsions

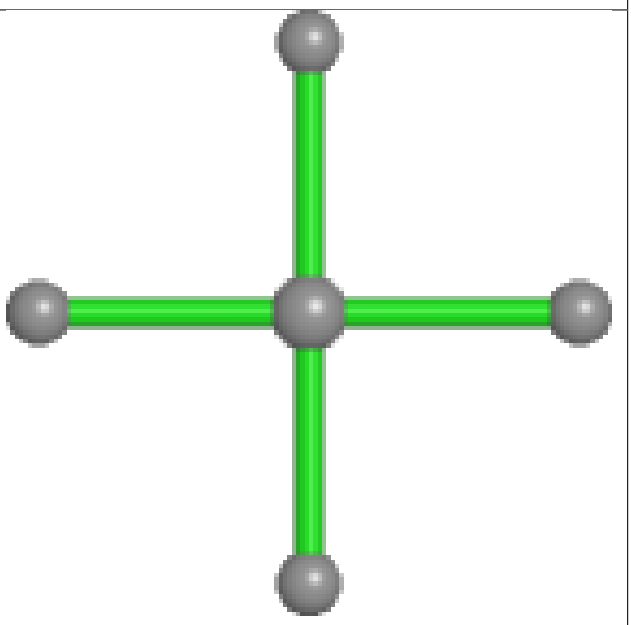


Rings

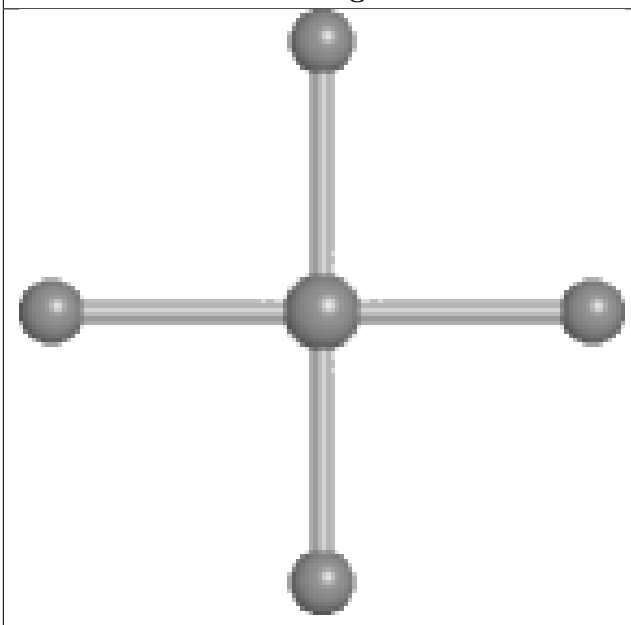
Ligand PO4 D 804



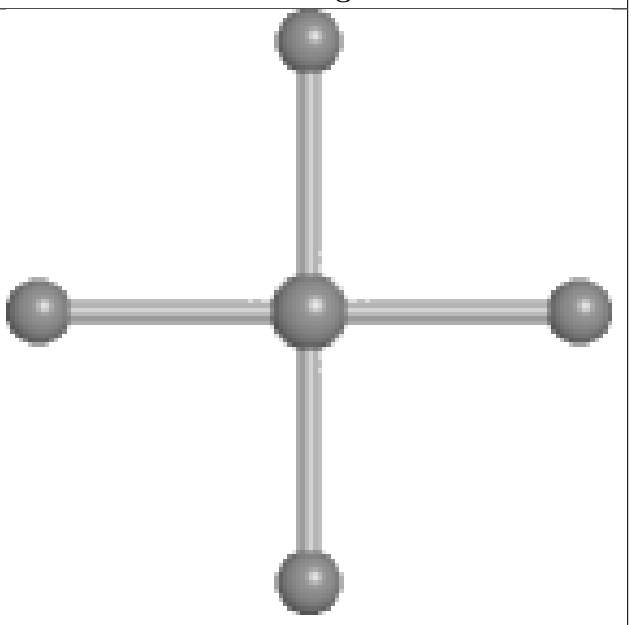
Bond lengths



Bond angles

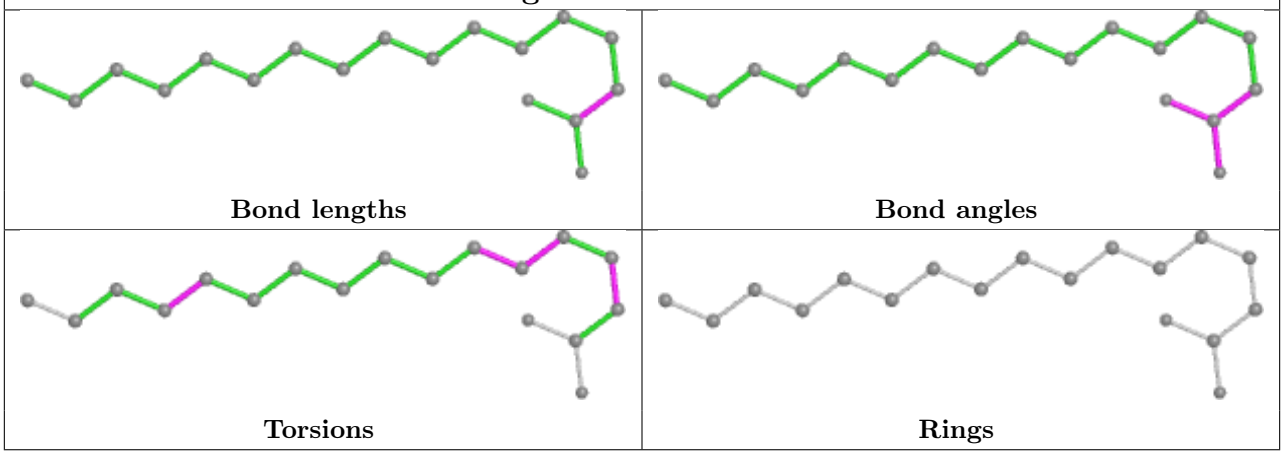


Torsions



Rings

Ligand PLM A 809



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.

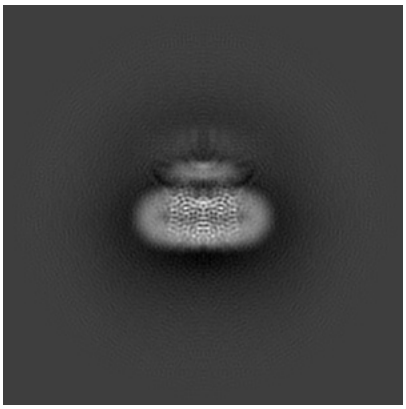
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-60707. These allow visual inspection of the internal detail of the map and identification of artifacts.

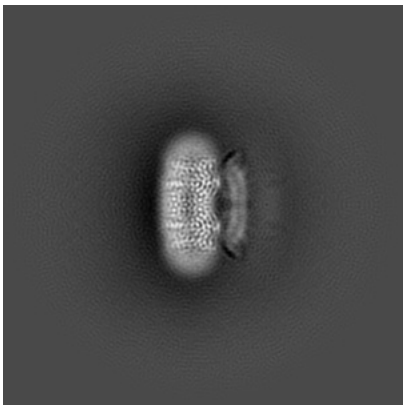
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

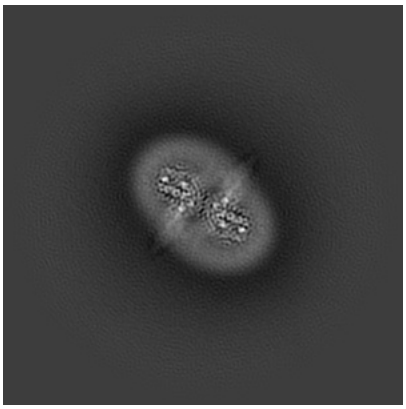
6.1.1 Primary map



X

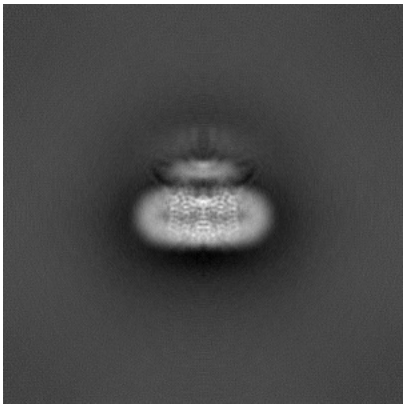


Y

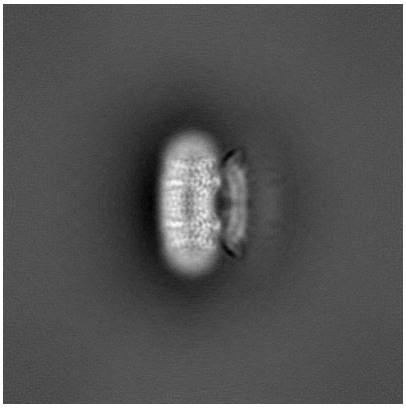


Z

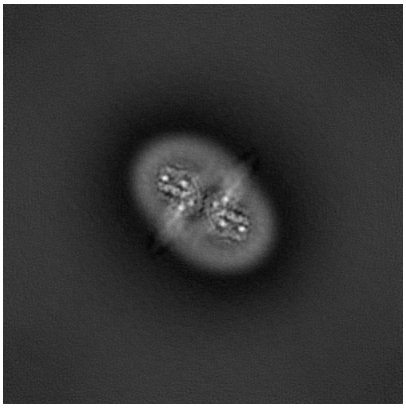
6.1.2 Raw map



X



Y

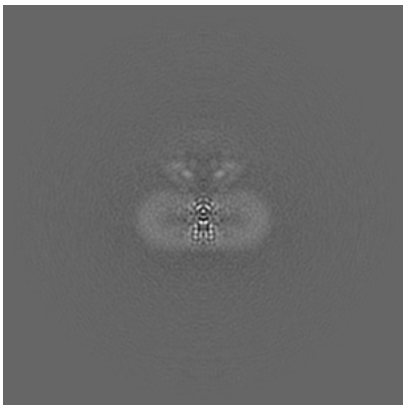


Z

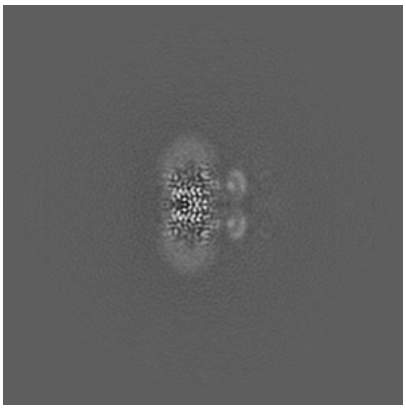
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

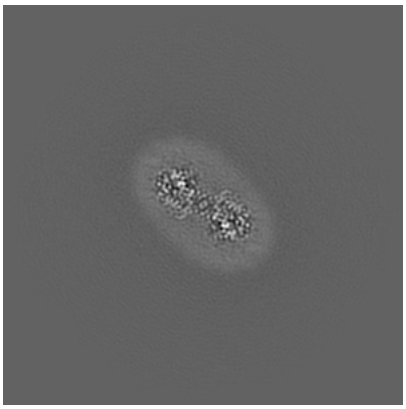
6.2.1 Primary map



X Index: 240

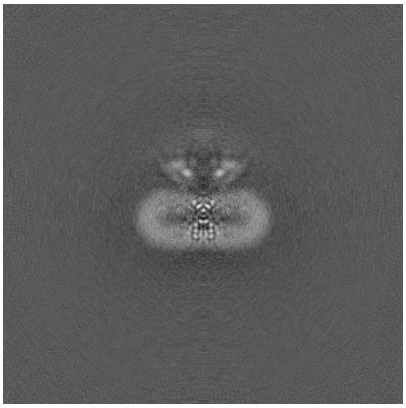


Y Index: 240

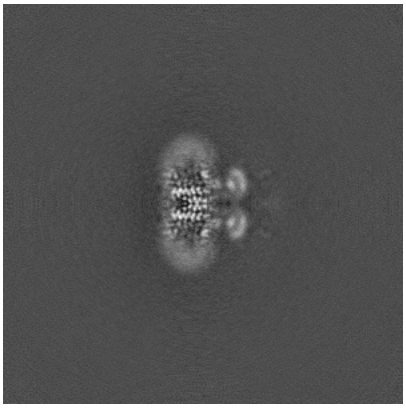


Z Index: 240

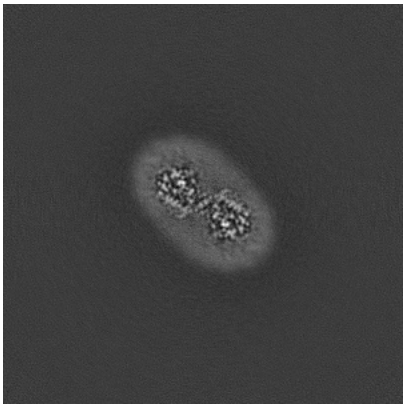
6.2.2 Raw map



X Index: 240



Y Index: 240

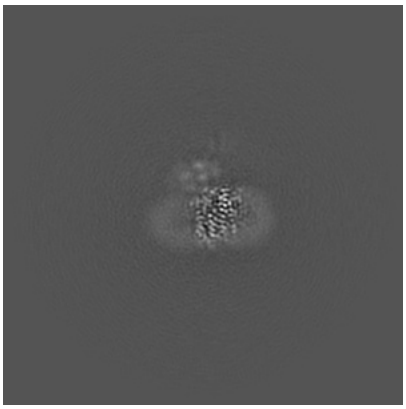


Z Index: 240

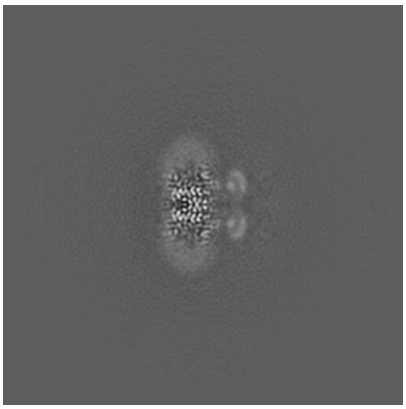
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

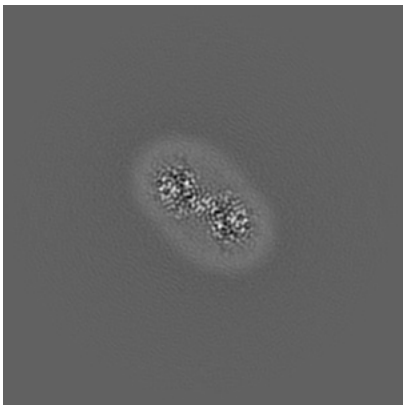
6.3.1 Primary map



X Index: 215

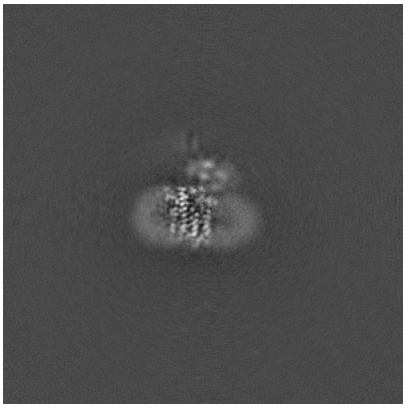


Y Index: 240

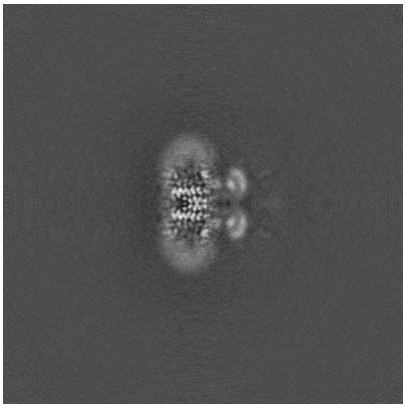


Z Index: 237

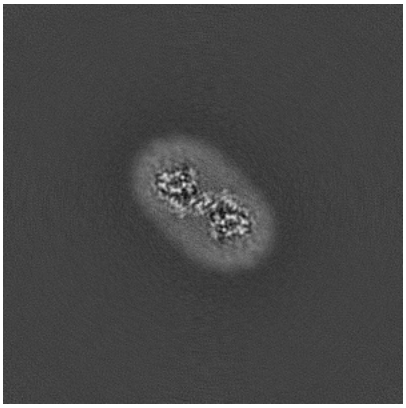
6.3.2 Raw map



X Index: 265



Y Index: 240

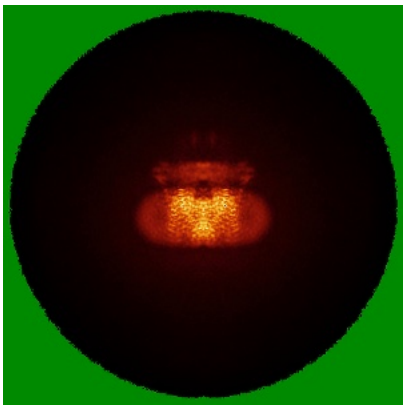


Z Index: 242

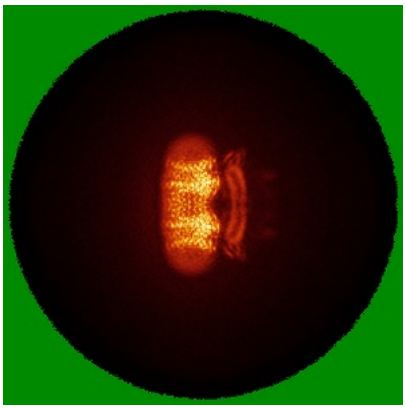
The images above show the largest variance slices of the map in three orthogonal directions.

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

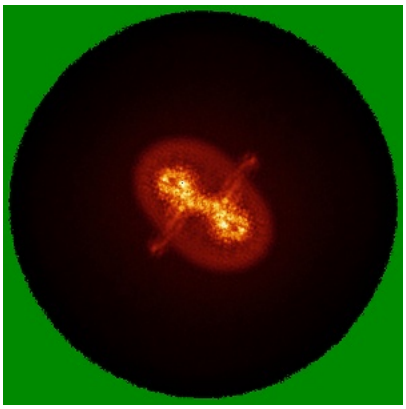
6.4.1 Primary map



X

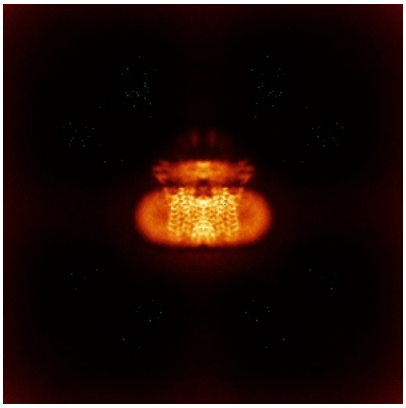


Y

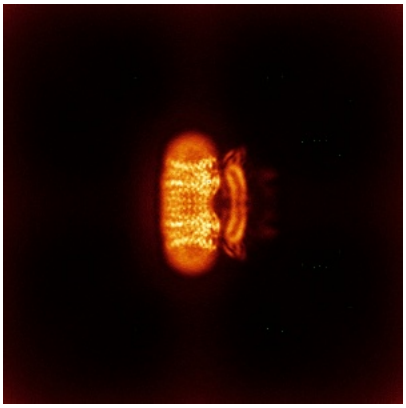


Z

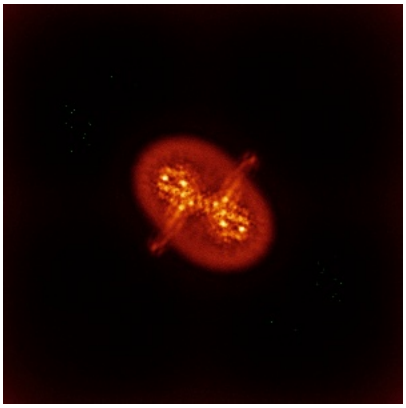
6.4.2 Raw map



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 0.2. 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.

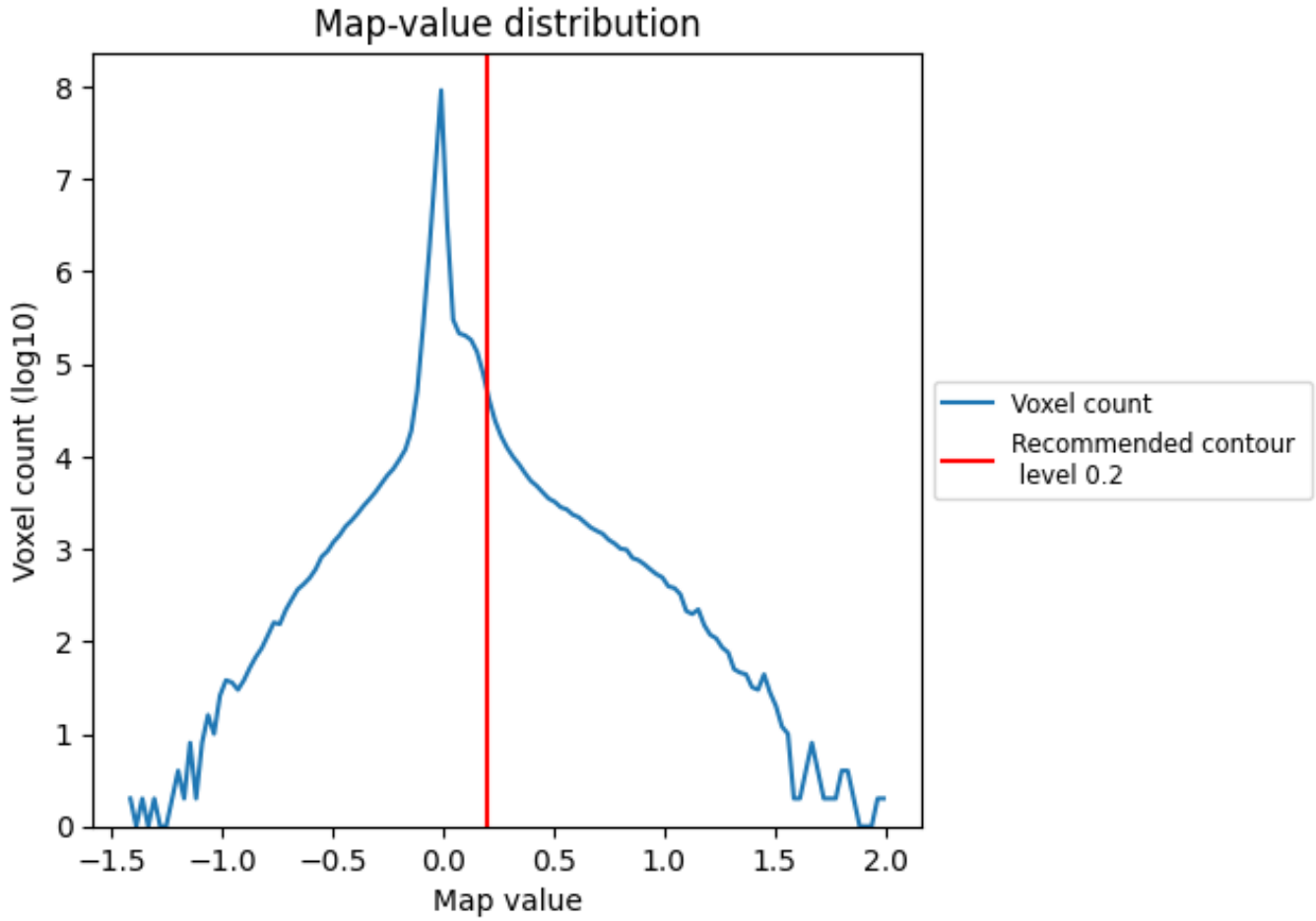
6.6 Mask visualisation (i)

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

7 Map analysis

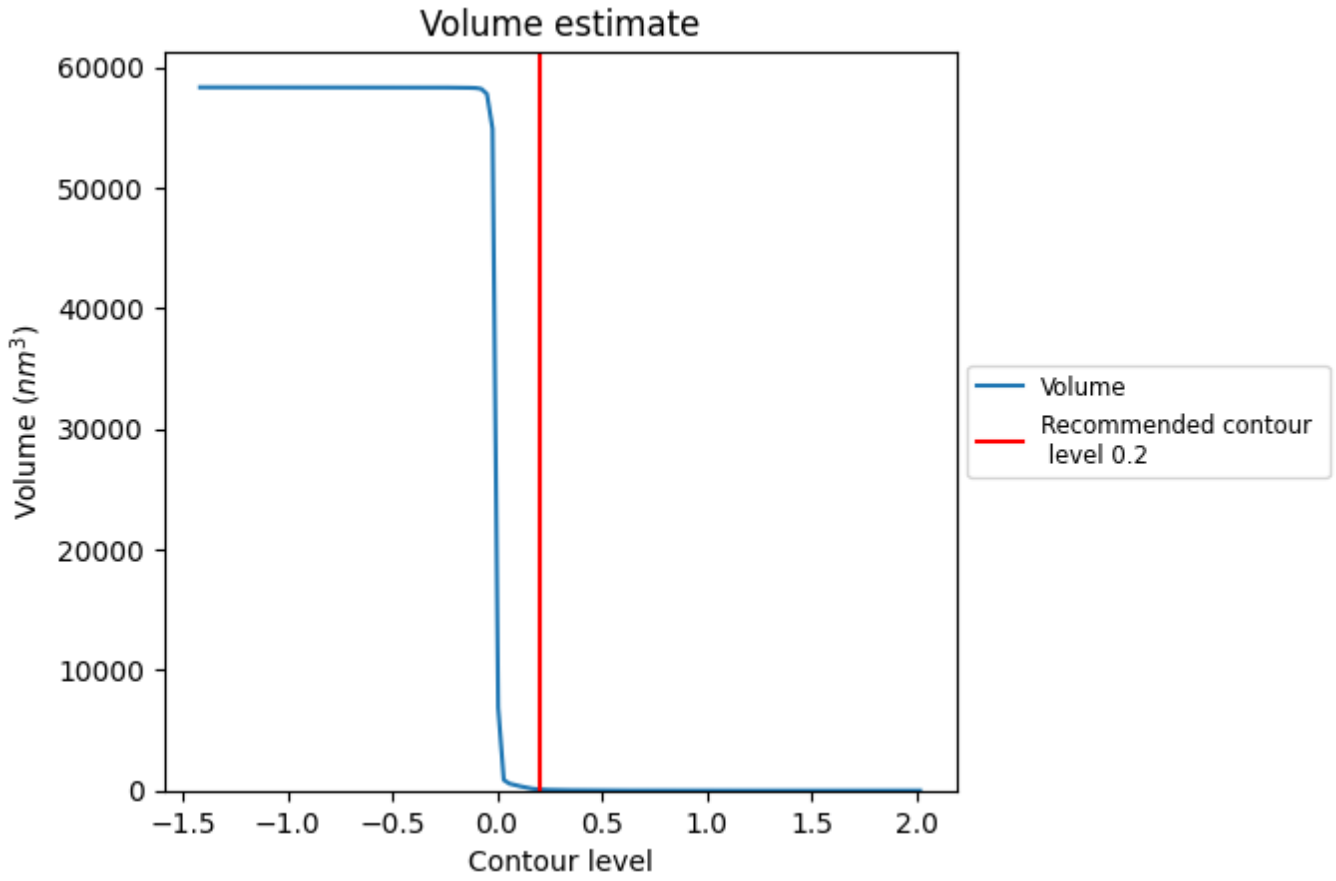
This section contains the results of statistical analysis of the map.

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.

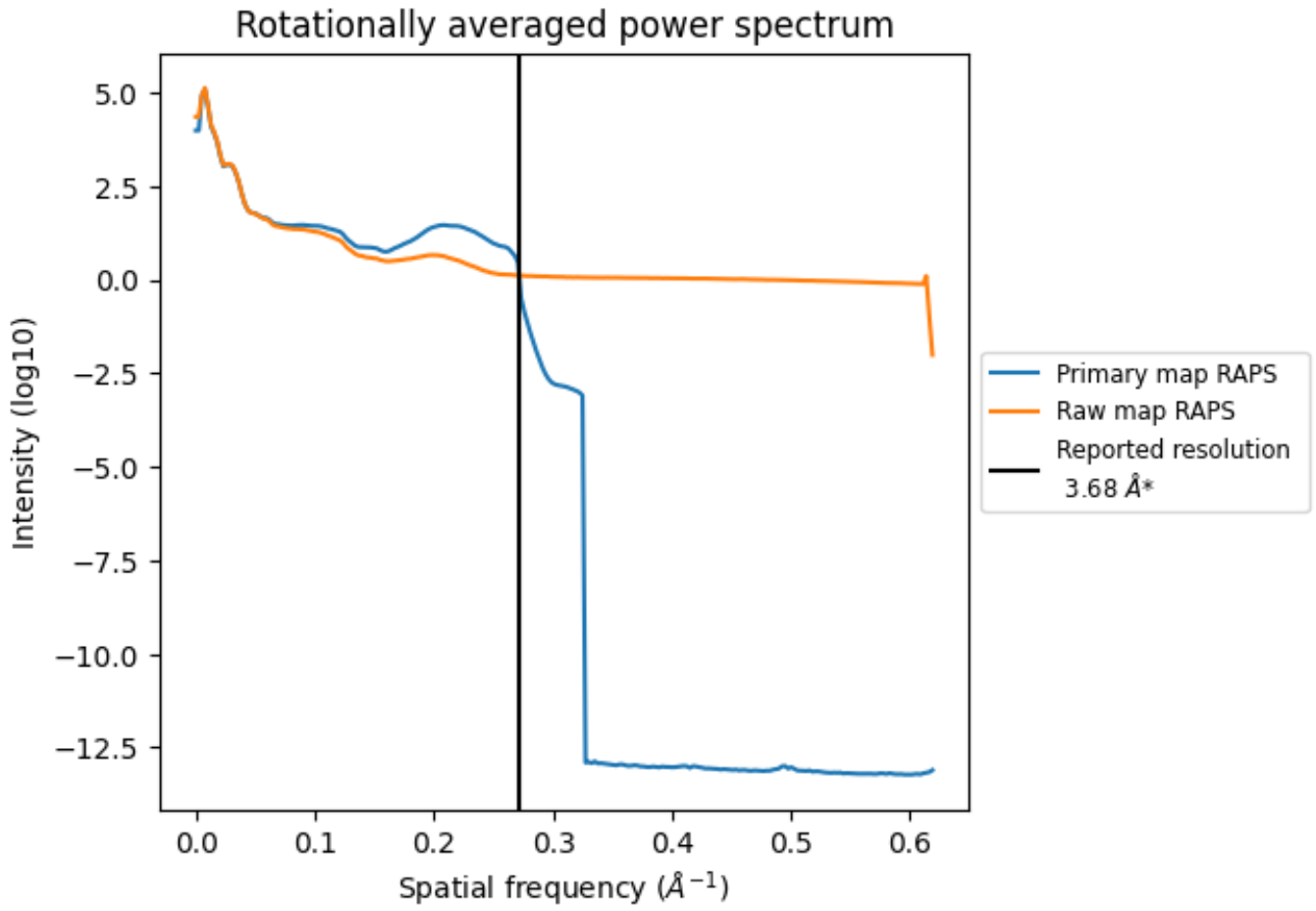
7.2 Volume estimate



The volume at the recommended contour level is 99 nm^3; this corresponds to an approximate mass of 89 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)

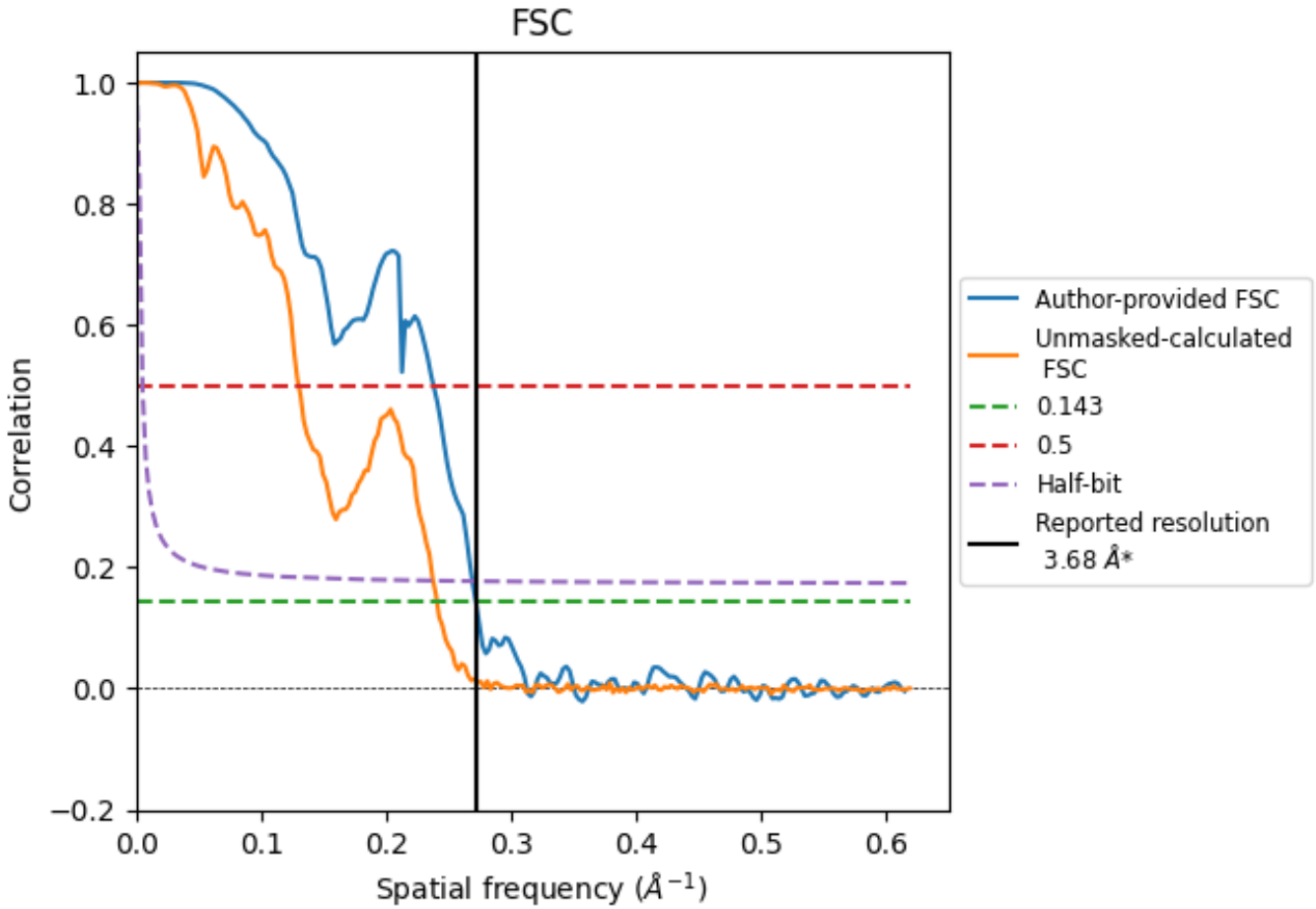


*Reported resolution corresponds to spatial frequency of 0.272 Å^{-1}

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 0.272 Å^{-1}

8.2 Resolution estimates (i)

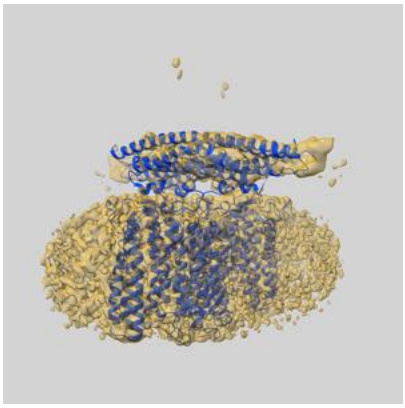
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.68	-	-
Author-provided FSC curve	3.68	4.20	3.72
Unmasked-calculated*	4.15	7.69	4.21

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.15 differs from the reported value 3.68 by more than 10 %

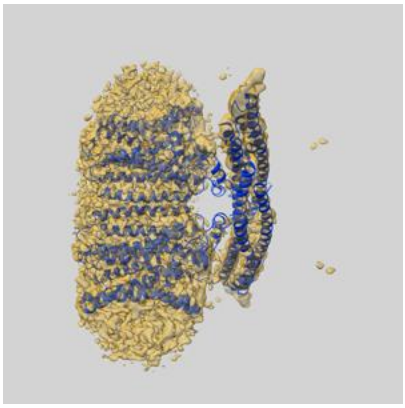
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-60707 and PDB model 9INH. Per-residue inclusion information can be found in section 3 on page 9.

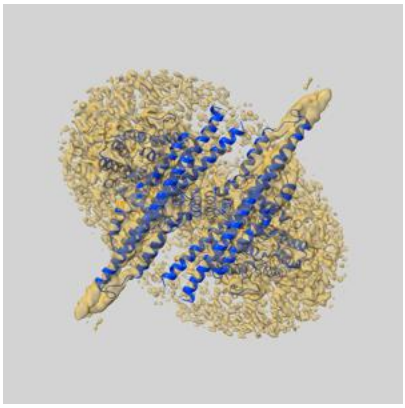
9.1 Map-model overlay



X



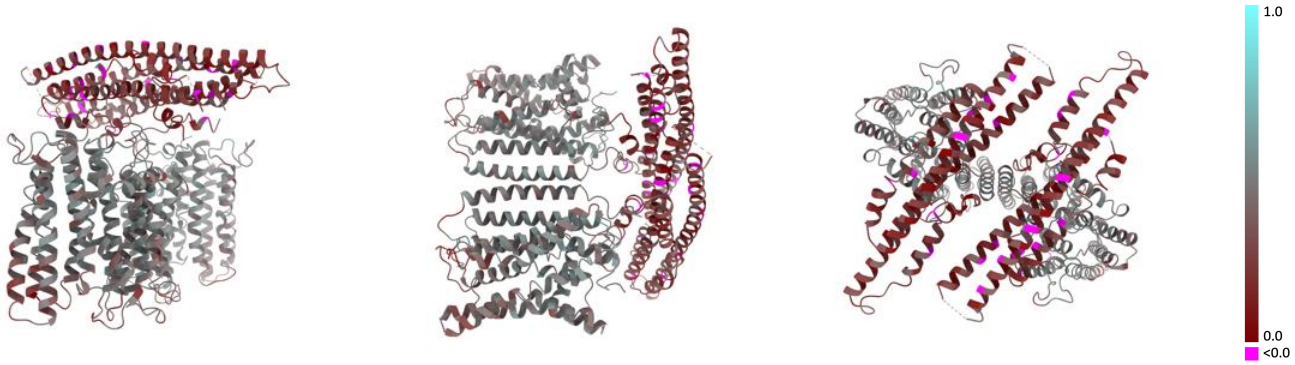
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.2 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.

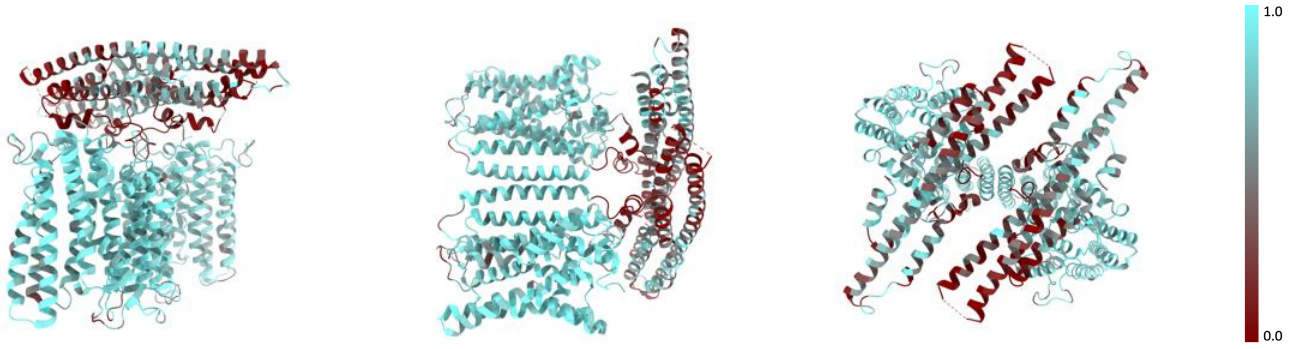
9.2 Q-score mapped to coordinate model (i)



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.

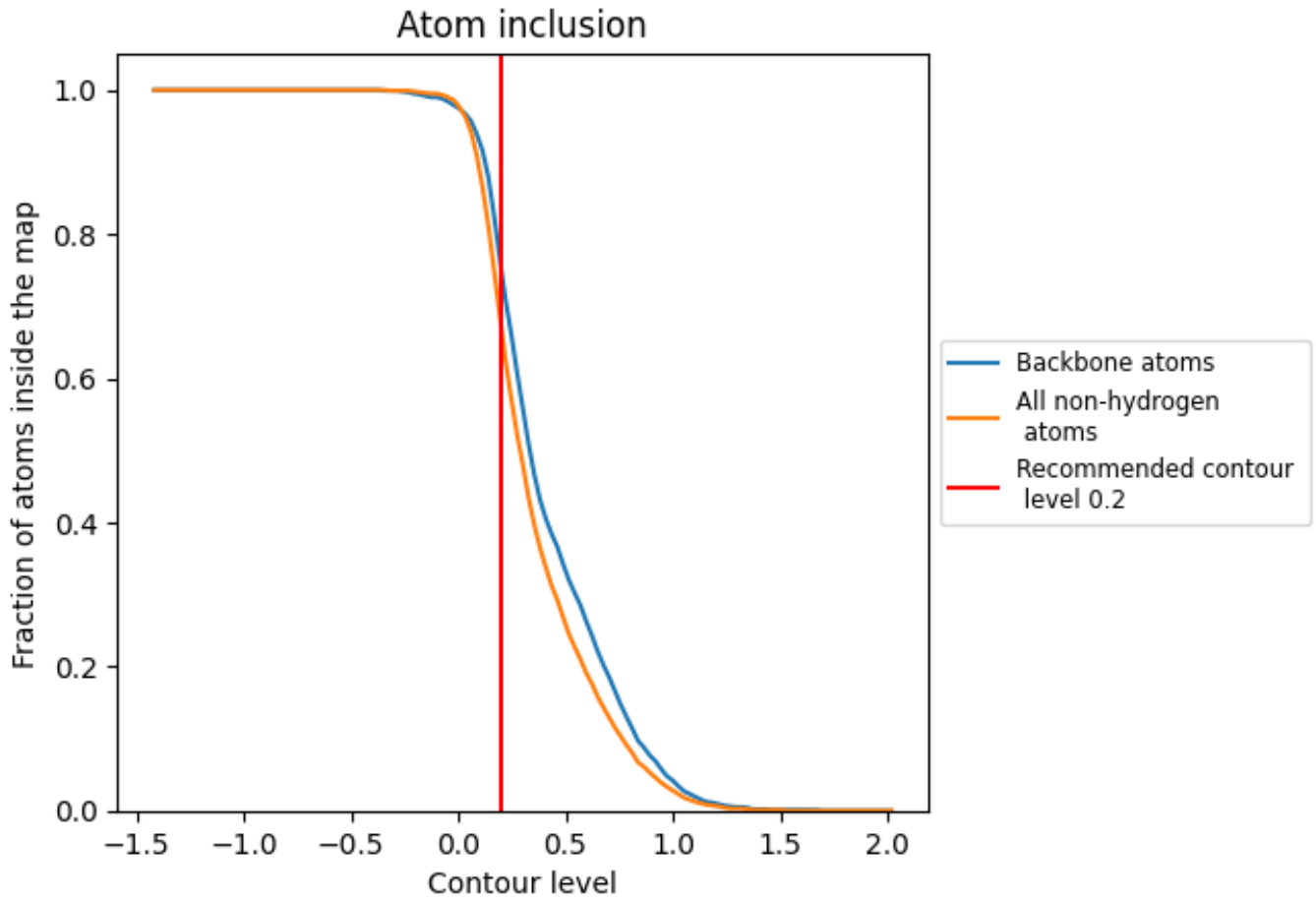
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.2).

9.4 Atom inclusion (i)



At the recommended contour level, 75% of all backbone atoms, 67% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6720	0.3700
A	0.6690	0.3700
D	0.6750	0.3710