Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2024 – 02:18 PM EST

PDB ID	:	8VTN
Title	:	Crystal structure of R. sphaeroides Photosynthetic Reaction Center variant Y (M210)2-nitrophenylalanine
Authors	:	Tran, K.; Mathews, I.; Boxer, S.G.
Deposited on	:	2024-01-26
Resolution	:	3.57 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp
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:

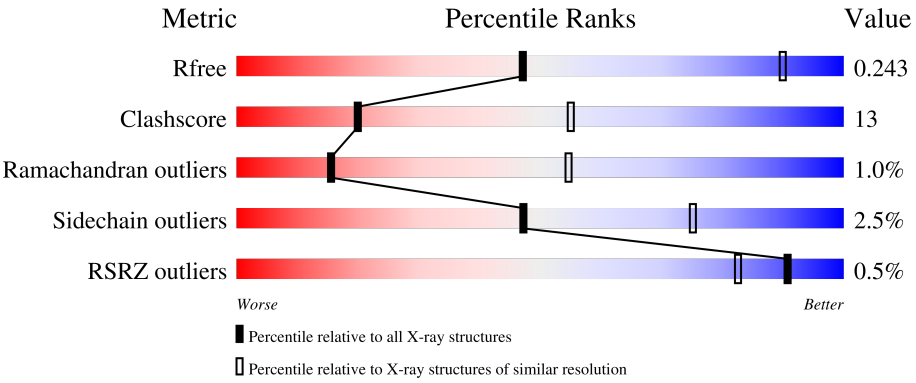
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.57 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1094 (3.66-3.50)
Clashscore	141614	1181 (3.66-3.50)
Ramachandran outliers	138981	1143 (3.66-3.50)
Sidechain outliers	138945	1143 (3.66-3.50)
RSRZ outliers	127900	1012 (3.66-3.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	H	240	2%, 70%, 28%
2	L	281	73%, 25%
3	M	301	77%, 23%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
10	CDL	M	408	X	-	-	-
6	LDA	M	403	-	-	-	X
6	LDA	M	404	-	-	-	X

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 6999 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Reaction center protein H chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	H	240	Total	C	N	O	S	0	0	0
			1829	1169	314	337	9			

- Molecule 2 is a protein called Reaction center protein L chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	281	Total	C	N	O	S	8	1	0
			2240	1513	356	363	8			

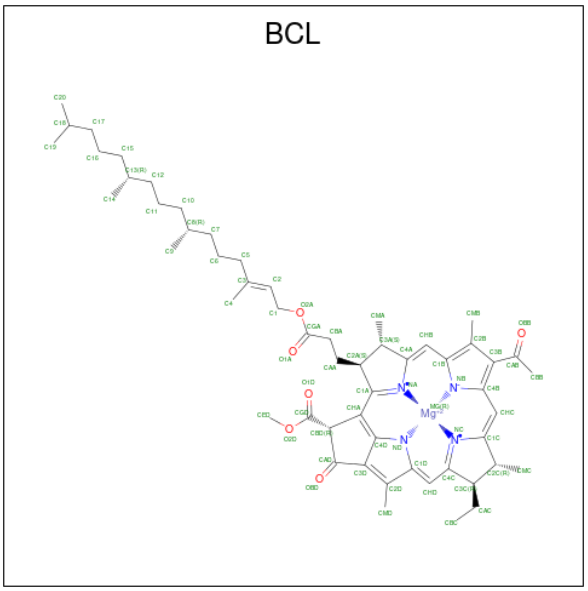
- Molecule 3 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	M	301	Total	C	N	O	S	0	0	0
			2398	1598	393	397	10			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	210	A1ADY	TYR	conflict	UNP P0C0Y9
M	252	VAL	TRP	conflict	UNP P0C0Y9

- Molecule 4 is BACTERIOCHLOROPHYLL A (three-letter code: BCL) (formula: $C_{55}H_{74}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).

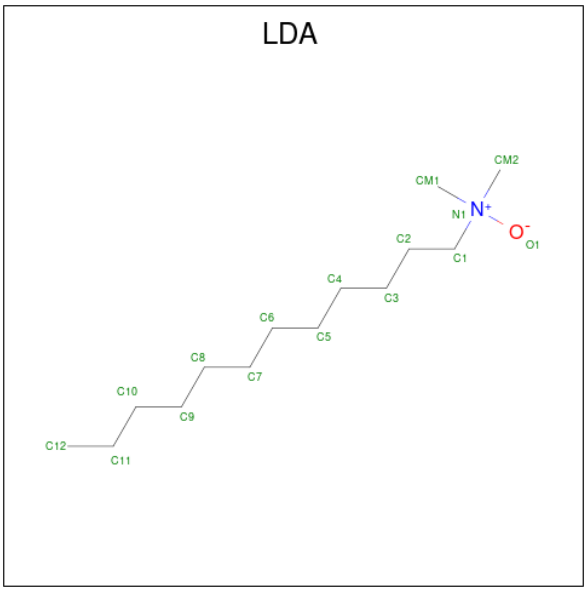


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	L	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
4	L	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
4	M	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
4	M	1	Total	C	Mg	N	O	0	0
			51	40	1	4	6		

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	L	1	Total	Cl	0	0
			1	1		

- Molecule 6 is LAURYL DIMETHYLAMINE-N-OXIDE (three-letter code: LDA) (formula: $C_{14}H_{31}NO$).

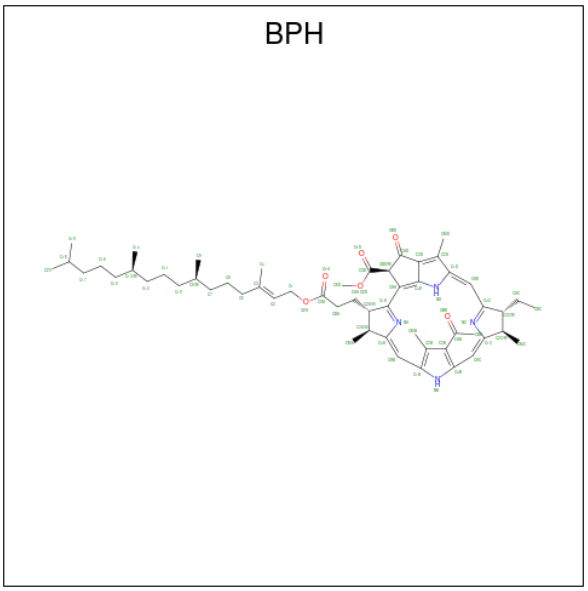


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	M	1	Total C N O 16 14 1 1	0	0
6	M	1	Total C N O 16 14 1 1	0	0
6	M	1	Total C N O 16 14 1 1	0	0

- Molecule 7 is FE (III) ION (three-letter code: FE) (formula: Fe).

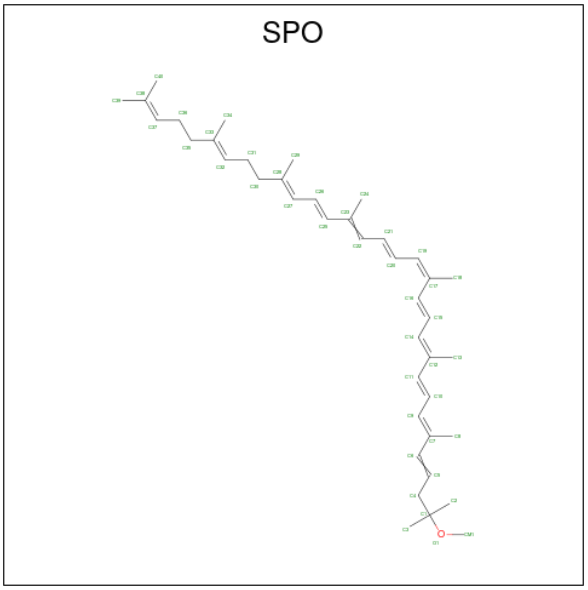
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	M	1	Total Fe 1 1	0	0

- Molecule 8 is BACTERIOPHEOPHYTIN A (three-letter code: BPH) (formula: $C_{55}H_{76}N_4O_6$) (labeled as "Ligand of Interest" by depositor).



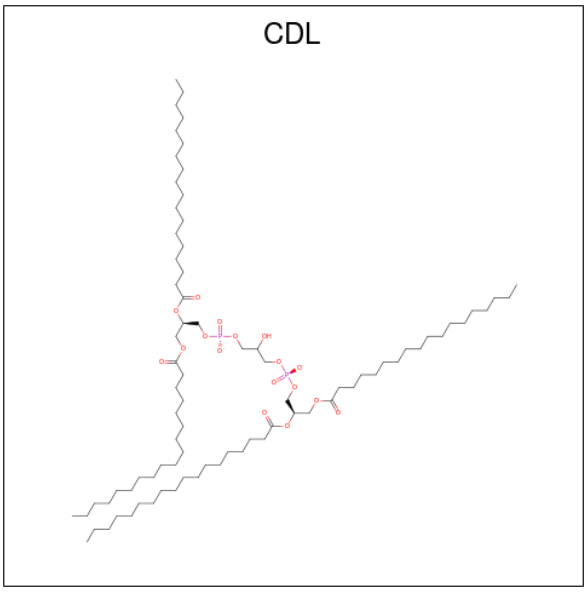
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	M	1	Total	C	N	O	0	0
			55	45	4	6		
8	M	1	Total	C	N	O	0	0
			65	55	4	6		

- Molecule 9 is SPHEROIDENE (three-letter code: SPO) (formula: $C_{41}H_{60}O$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	M	1	Total	C	O	0	0
			42	41	1		

- Molecule 10 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
10	M	1	Total	C	O	P	0	0
			69	50	17	2		

- Molecule 11 is water.

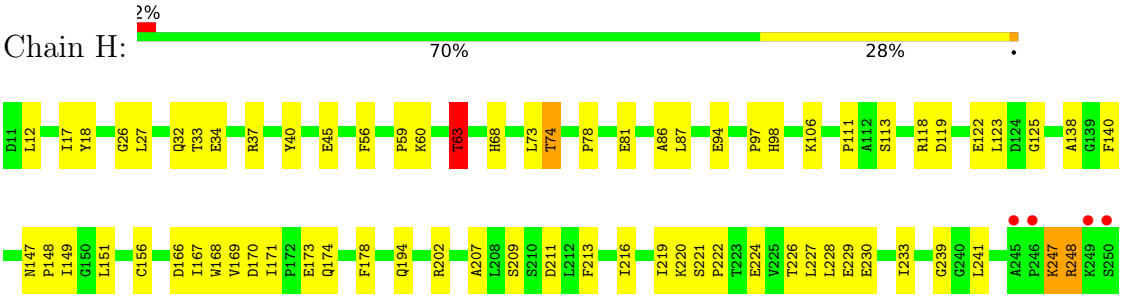
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	H	1	Total	O	0	0
			1	1		
11	M	1	Total	O	0	0
			1	1		

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 electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.

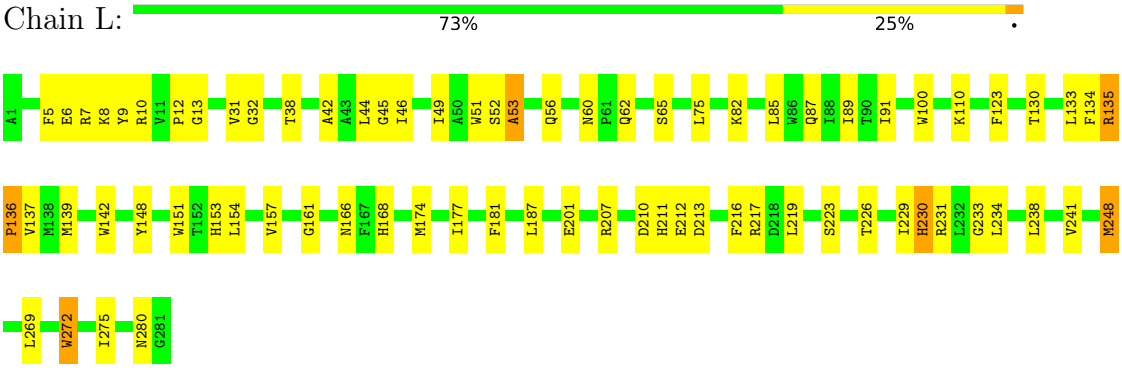
• Molecule 1: Reaction center protein H chain

Chain H:



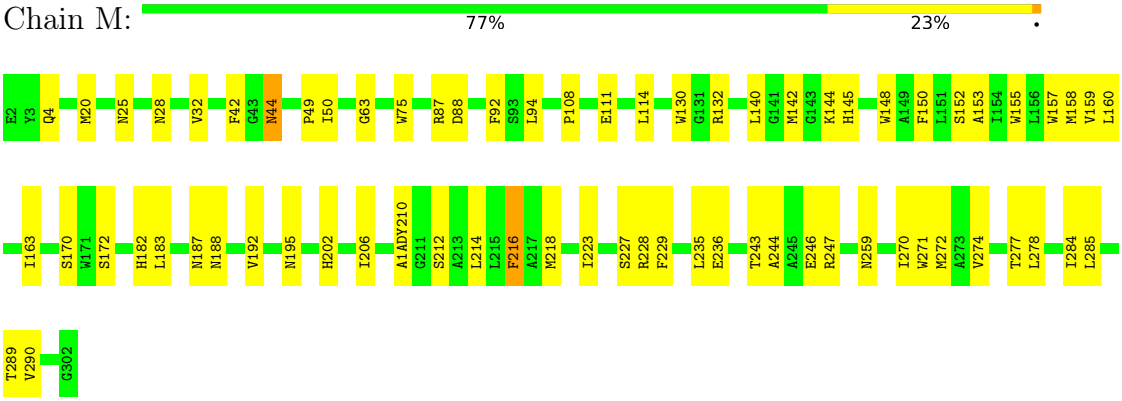
• Molecule 2: Reaction center protein L chain

Chain L:



• Molecule 3: Reaction center protein M chain

Chain M:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	141.49Å 141.49Å 187.51Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	37.45 – 3.57 39.91 – 3.57	Depositor EDS
% Data completeness (in resolution range)	99.7 (37.45-3.57) 89.4 (39.91-3.57)	Depositor EDS
R_{merge}	0.31	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.39 (at 3.57Å)	Xtriage
Refinement program	PHENIX (1.19.2_4158: ???)	Depositor
R, R_{free}	0.211 , 0.246 0.212 , 0.243	Depositor DCC
R_{free} test set	1318 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	76.1	Xtriage
Anisotropy	0.169	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 48.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.035 for -h,-k,l	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	6999	wwPDB-VP
Average B, all atoms (Å^2)	79.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.83% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SPO, LDA, BPH, CL, CDL, FE, BCL, A1ADY

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	H	0.28	0/1877	0.51	0/2553
2	L	0.31	0/2328	0.48	0/3186
3	M	0.26	0/2472	0.47	0/3372
All	All	0.28	0/6677	0.48	0/9111

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	H	1829	0	1834	54	0
2	L	2240	0	2197	77	0
3	M	2398	0	2302	59	0
4	L	132	0	146	12	0
4	M	117	0	115	9	0
5	L	1	0	0	0	0
6	M	48	0	93	2	0
7	M	1	0	0	0	0
8	M	120	0	127	11	0
9	M	42	0	57	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	M	69	0	80	5	0
11	H	1	0	0	0	0
11	M	1	0	0	0	0
All	All	6999	0	6951	176	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 13.

All (176) 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)
2:L:133:LEU:O	2:L:136:PRO:HD2	1.28	1.30
2:L:135:ARG:O	2:L:139:MET:HG3	1.65	0.95
2:L:135:ARG:HG2	2:L:135:ARG:HH11	1.33	0.93
2:L:133:LEU:O	2:L:136:PRO:CD	2.17	0.92
1:H:148:PRO:HA	1:H:151:LEU:HD12	1.57	0.84
1:H:156:CYS:SG	1:H:247:LYS:O	2.37	0.82
2:L:133:LEU:C	2:L:136:PRO:HD2	2.02	0.80
2:L:136:PRO:O	2:L:139:MET:N	2.13	0.80
2:L:13:GLY:O	2:L:110:LYS:NZ	2.16	0.79
2:L:135:ARG:HG2	2:L:135:ARG:NH1	1.99	0.76
3:M:63:GLY:HA3	8:M:406:BPH:H5C2	1.69	0.75
4:L:302:BCL:HBB3	4:M:410:BCL:HMD2	1.68	0.74
2:L:82:LYS:HE3	2:L:82:LYS:HA	1.70	0.74
1:H:211:ASP:OD2	1:H:247:LYS:NZ	2.23	0.71
1:H:248:ARG:CZ	1:H:248:ARG:HB2	2.22	0.69
2:L:207:ARG:HG3	3:M:142:MET:HG2	1.73	0.68
2:L:136:PRO:O	2:L:137:VAL:C	2.29	0.68
2:L:56:GLN:NE2	2:L:65:SER:O	2.27	0.67
1:H:40:TYR:HE1	3:M:259:ASN:HD21	1.44	0.66
2:L:241:VAL:HG21	8:M:409:BPH:HAC2	1.77	0.66
2:L:272:TRP:HA	2:L:275:ILE:HD12	1.78	0.65
1:H:111:PRO:HB2	1:H:239:GLY:HA2	1.78	0.65
2:L:201:GLU:OE2	3:M:144:LYS:NZ	2.29	0.65
2:L:168:HIS:HB3	3:M:183:LEU:HD13	1.79	0.64
3:M:108:PRO:HG2	3:M:111:GLU:HB2	1.80	0.63
3:M:144:LYS:HB2	3:M:148:TRP:NE1	2.14	0.63
3:M:152:SER:HB2	3:M:274:VAL:HG23	1.79	0.63
1:H:37:ARG:NH1	1:H:60:LYS:O	2.26	0.62
3:M:25:ASN:ND2	3:M:28:ASN:OD1	2.32	0.62
2:L:157:VAL:HG11	4:M:401:BCL:HBB1	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:118:ARG:NH2	3:M:236:GLU:OE2	2.32	0.62
3:M:155:TRP:O	3:M:159:VAL:HG23	1.99	0.62
2:L:135:ARG:O	2:L:135:ARG:HG3	1.98	0.61
2:L:231:ARG:NH1	3:M:42:PHE:O	2.33	0.61
1:H:149:ILE:HD11	1:H:167:ILE:HG13	1.83	0.60
1:H:173:GLU:OE1	2:L:226:THR:OG1	2.15	0.60
2:L:212:GLU:OE2	3:M:235:LEU:HD11	2.03	0.59
1:H:125:GLY:N	2:L:210:ASP:OD2	2.32	0.58
1:H:63:THR:HA	1:H:74:THR:HA	1.83	0.58
1:H:209:SER:OG	1:H:211:ASP:OD1	2.21	0.58
2:L:9:TYR:OH	3:M:246:GLU:OE1	2.14	0.58
1:H:113:SER:HB3	2:L:8:LYS:HD2	1.86	0.58
2:L:6:GLU:OE2	2:L:10:ARG:NH2	2.27	0.58
2:L:51:TRP:O	2:L:53:ALA:N	2.37	0.57
2:L:46:ILE:H	2:L:46:ILE:HD12	1.68	0.57
2:L:148:TYR:HD1	8:M:409:BPH:H161	1.69	0.57
2:L:85:LEU:O	2:L:89:ILE:HG13	2.05	0.57
2:L:177:ILE:HG12	4:L:302:BCL:HMB3	1.86	0.57
1:H:32:GLN:HG2	1:H:56:PHE:CE2	2.40	0.56
3:M:229:PHE:HB2	3:M:244:ALA:HB2	1.86	0.56
1:H:63:THR:HG22	1:H:63:THR:O	2.06	0.56
3:M:170:SER:HG	3:M:172:SER:HG	1.51	0.55
3:M:145:HIS:HD2	10:M:408:CDL:HB61	1.71	0.55
2:L:62:GLN:OE1	2:L:151:TRP:NE1	2.32	0.54
3:M:285:LEU:O	3:M:289:THR:OG1	2.23	0.54
2:L:148:TYR:CD1	8:M:409:BPH:H161	2.42	0.54
2:L:219:LEU:O	3:M:132:ARG:NH2	2.38	0.54
3:M:278:LEU:HD21	10:M:408:CDL:H382	1.90	0.53
1:H:97:PRO:HB2	2:L:12:PRO:HG3	1.90	0.53
1:H:194:GLN:NE2	3:M:227:SER:O	2.42	0.53
3:M:270:ILE:O	3:M:274:VAL:HG12	2.09	0.53
1:H:34:GLU:OE2	1:H:37:ARG:NH2	2.34	0.53
1:H:220:LYS:HG3	1:H:229:GLU:OE2	2.09	0.53
3:M:144:LYS:HB2	3:M:148:TRP:HE1	1.73	0.53
3:M:152:SER:OG	3:M:277:THR:OG1	2.24	0.53
2:L:130:THR:HA	2:L:134:PHE:HD2	1.74	0.52
2:L:181:PHE:HD2	8:M:406:BPH:HBB1	1.75	0.52
1:H:87:LEU:HD13	1:H:98:HIS:HB2	1.91	0.52
1:H:98:HIS:CE1	2:L:7:ARG:HE	2.28	0.52
1:H:81:GLU:OE1	2:L:8:LYS:NZ	2.42	0.51
3:M:130:TRP:HD1	3:M:150:PHE:HD2	1.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:152:SER:CB	3:M:274:VAL:HG23	2.40	0.51
3:M:202:HIS:CE1	3:M:206:ILE:HD11	2.45	0.51
1:H:81:GLU:OE2	2:L:5:PHE:HA	2.10	0.51
2:L:210:ASP:HB3	3:M:20:MET:HE3	1.91	0.51
1:H:147:ASN:OD1	1:H:149:ILE:HG12	2.12	0.50
1:H:166:ASP:OD1	1:H:167:ILE:N	2.44	0.50
4:M:401:BCL:H62	4:M:410:BCL:HBB3	1.94	0.50
1:H:45:GLU:OE1	1:H:98:HIS:NE2	2.41	0.50
4:L:301:BCL:HMD1	3:M:206:ILE:HD13	1.94	0.50
3:M:243:THR:O	3:M:247:ARG:HG3	2.11	0.50
1:H:119:ASP:HA	1:H:226:THR:HG21	1.92	0.49
1:H:169:VAL:HG23	1:H:171:ILE:HD12	1.94	0.49
4:L:301:BCL:HBC1	4:L:302:BCL:O2A	2.13	0.49
1:H:168:TRP:HB2	1:H:178:PHE:HB2	1.94	0.49
1:H:68:HIS:HD2	1:H:123:LEU:HD12	1.77	0.49
1:H:248:ARG:CZ	1:H:248:ARG:CB	2.88	0.48
2:L:135:ARG:N	2:L:136:PRO:CD	2.76	0.48
2:L:229:ILE:HG23	2:L:230:HIS:ND1	2.28	0.48
3:M:130:TRP:HD1	3:M:150:PHE:CD2	2.31	0.48
2:L:38:THR:HG21	2:L:100:TRP:HE3	1.79	0.48
3:M:188:ASN:O	3:M:192:VAL:HG23	2.13	0.48
3:M:271:TRP:HA	3:M:274:VAL:HG12	1.95	0.48
3:M:32:VAL:HG12	3:M:49:PRO:HD3	1.94	0.48
3:M:153:ALA:HB1	4:M:401:BCL:H72	1.95	0.48
2:L:42:ALA:O	2:L:46:ILE:HD12	2.12	0.48
2:L:153:HIS:O	2:L:157:VAL:HG23	2.14	0.48
4:L:301:BCL:HBC1	4:L:302:BCL:HAA2	1.95	0.48
3:M:228:ARG:HG3	3:M:229:PHE:CE1	2.49	0.47
3:M:160:LEU:HD23	3:M:284:ILE:HG21	1.96	0.47
2:L:213:ASP:O	2:L:217:ARG:HG3	2.14	0.47
2:L:157:VAL:HG13	4:L:302:BCL:HMD2	1.97	0.47
4:L:301:BCL:HBC3	4:L:302:BCL:HBD	1.97	0.47
3:M:130:TRP:CD1	3:M:150:PHE:HD2	2.33	0.46
2:L:181:PHE:CD2	8:M:406:BPH:HBB1	2.51	0.46
2:L:233:GLY:HA2	3:M:216:PHE:CE2	2.51	0.46
2:L:174:MET:SD	4:M:410:BCL:HED3	2.55	0.46
2:L:216:PHE:HB2	2:L:223:SER:HB2	1.97	0.46
2:L:217:ARG:O	3:M:50:ILE:HA	2.16	0.46
1:H:140:PHE:HE2	1:H:174:GLN:HG2	1.82	0.45
3:M:145:HIS:CD2	10:M:408:CDL:HB61	2.51	0.45
1:H:207:ALA:HA	1:H:241:LEU:HD23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:26:GLY:HA3	10:M:408:CDL:H172	1.98	0.45
9:M:407:SPO:H312	9:M:407:SPO:H27	1.57	0.45
2:L:187:LEU:HD13	3:M:216:PHE:HB2	1.97	0.45
6:M:403:LDA:HM13	6:M:403:LDA:H22	1.49	0.45
1:H:226:THR:O	1:H:230:GLU:N	2.37	0.45
2:L:230:HIS:HD2	3:M:223:ILE:HB	1.82	0.45
1:H:63:THR:HA	1:H:73:LEU:O	2.17	0.44
4:L:302:BCL:HMB2	4:M:401:BCL:HMB2	1.99	0.44
8:M:409:BPH:H162	8:M:409:BPH:H192	1.78	0.44
3:M:94:LEU:HD11	3:M:114:LEU:HB3	1.98	0.44
4:M:410:BCL:HBB2	4:M:410:BCL:HHC	1.98	0.44
1:H:229:GLU:O	1:H:233:ILE:HG13	2.17	0.44
1:H:219:ILE:HA	1:H:229:GLU:OE2	2.17	0.44
2:L:60:ASN:OD1	2:L:62:GLN:HB2	2.18	0.44
2:L:207:ARG:HD3	2:L:207:ARG:HA	1.74	0.43
2:L:280:ASN:O	3:M:87:ARG:NH2	2.50	0.43
2:L:230:HIS:HD2	3:M:223:ILE:CB	2.31	0.43
4:M:401:BCL:HHC	4:M:401:BCL:HBB3	2.00	0.43
4:L:301:BCL:HBC2	4:L:301:BCL:H2C	1.67	0.43
3:M:75:TRP:HE1	9:M:407:SPO:HM13	1.83	0.43
3:M:87:ARG:HG2	3:M:88:ASP:OD1	2.19	0.43
2:L:123:PHE:CE1	2:L:238:LEU:HD13	2.54	0.43
3:M:214:LEU:HD13	8:M:409:BPH:ND	2.34	0.43
2:L:217:ARG:NH2	3:M:44:ASN:HD22	2.16	0.43
1:H:45:GLU:OE2	1:H:94:GLU:HA	2.18	0.42
2:L:234:LEU:O	2:L:238:LEU:HG	2.19	0.42
2:L:248:MET:HG2	4:L:302:BCL:O1D	2.19	0.42
2:L:153:HIS:CE1	2:L:154:LEU:HD13	2.54	0.42
4:L:302:BCL:HMB1	4:L:302:BCL:HBB2	2.00	0.42
4:M:401:BCL:H41	4:M:410:BCL:HBB3	2.01	0.42
1:H:33:THR:O	1:H:59:PRO:HG3	2.20	0.42
2:L:31:VAL:HG12	2:L:32:GLY:O	2.19	0.42
2:L:181:PHE:HB3	8:M:406:BPH:HBB3	2.01	0.42
1:H:27:LEU:HD13	10:M:408:CDL:H141	2.00	0.42
2:L:75:LEU:HA	2:L:142:TRP:NE1	2.34	0.42
2:L:161:GLY:HA3	4:L:302:BCL:HHD	2.01	0.42
2:L:269:LEU:HB2	2:L:272:TRP:NE1	2.34	0.42
2:L:135:ARG:NH1	2:L:135:ARG:CG	2.72	0.42
3:M:218:MET:HG2	8:M:409:BPH:HMD2	2.02	0.42
1:H:68:HIS:CD2	1:H:123:LEU:HD12	2.55	0.42
2:L:148:TYR:CE1	8:M:409:BPH:H143	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:207:ARG:HB3	2:L:211:HIS:HB2	2.02	0.42
1:H:119:ASP:OD1	1:H:226:THR:HG21	2.20	0.41
1:H:248:ARG:O	1:H:248:ARG:HG3	2.18	0.41
2:L:187:LEU:HD22	3:M:212:SER:HB3	2.01	0.41
1:H:170:ASP:O	1:H:174:GLN:N	2.53	0.41
3:M:42:PHE:HB2	6:M:403:LDA:H91	2.02	0.41
1:H:221:SER:HA	1:H:222:PRO:HD3	1.94	0.41
2:L:87:GLN:O	2:L:91:ILE:HG13	2.20	0.41
3:M:158:MET:HB3	3:M:163:ILE:CD1	2.50	0.41
1:H:17:ILE:HD12	1:H:17:ILE:HA	1.94	0.41
1:H:18:TYR:HD1	1:H:18:TYR:HA	1.75	0.41
2:L:44:LEU:HD12	2:L:44:LEU:HA	1.96	0.41
9:M:407:SPO:H26	9:M:407:SPO:H241	1.84	0.41
3:M:88:ASP:HB2	3:M:92:PHE:CZ	2.56	0.41
3:M:157:TRP:CE3	3:M:158:MET:HG2	2.56	0.41
1:H:122:GLU:HB2	1:H:227:LEU:HD21	2.03	0.41
1:H:213:PHE:HA	1:H:216:ILE:HG13	2.02	0.40
1:H:221:SER:HB3	1:H:224:GLU:HG2	2.04	0.40
1:H:12:LEU:HD13	3:M:290:VAL:HG21	2.03	0.40
2:L:230:HIS:CD2	3:M:223:ILE:HG21	2.56	0.40
2:L:45:GLY:O	2:L:49:ILE:HD12	2.22	0.40
1:H:86:ALA:O	1:H:87:LEU:HD23	2.21	0.40
2:L:166:ASN:ND2	3:M:187:ASN:HB2	2.36	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 X-ray entries followed by that with respect to entries of similar resolution.

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	H	238/240 (99%)	224 (94%)	11 (5%)	3 (1%)	12 49
2	L	280/281 (100%)	259 (92%)	18 (6%)	3 (1%)	14 53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
3	M	296/301 (98%)	277 (94%)	17 (6%)	2 (1%)	22 62
All	All	814/822 (99%)	760 (93%)	46 (6%)	8 (1%)	15 55

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	138	ALA
2	L	52	SER
2	L	53	ALA
2	L	136	PRO
1	H	63	THR
3	M	4	GLN
3	M	195	ASN
1	H	78	PRO

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 X-ray entries followed by that with respect to entries of similar resolution.

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	H	195/195 (100%)	188 (96%)	7 (4%)	35 67
2	L	221/220 (100%)	217 (98%)	4 (2%)	59 81
3	M	235/235 (100%)	230 (98%)	5 (2%)	53 79
All	All	651/650 (100%)	635 (98%)	16 (2%)	47 75

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	63	THR
1	H	74	THR
1	H	106	LYS
1	H	202	ARG
1	H	228	LEU
1	H	247	LYS
1	H	248	ARG

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Mol	Chain	Res	Type
2	L	135	ARG
2	L	230	HIS
2	L	248	MET
2	L	272	TRP
3	M	44	ASN
3	M	140	LEU
3	M	182	HIS
3	M	216	PHE
3	M	272	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
3	M	44	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)

1 non-standard protein/DNA/RNA residue is 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	$\#\|Z\| > 2$
3	A1ADY	M	210	3	12,14,15	0.84	1 (8%)	11,18,20	0.97	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
3	A1ADY	M	210	3	-	4/7/10/12	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	M	210	A1ADY	O1-C3	2.85	1.31	1.19

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	M	210	A1ADY	C2-C5-C6-C8
3	M	210	A1ADY	C6-C8-N23-O25
3	M	210	A1ADY	C10-C8-N23-O25
3	M	210	A1ADY	C2-C5-C6-C7

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 13 ligands modelled in this entry, 2 are monoatomic - leaving 11 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	BCL	L	302	-	64,74,74	1.29	5 (7%)	78,115,115	1.57	14 (17%)
8	BPH	M	406	-	41,60,70	0.94	2 (4%)	40,89,101	1.14	3 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
6	LDA	M	403	-	12,15,15	2.10	1 (8%)	14,17,17	0.59	0
4	BCL	M	410	-	49,59,74	1.47	6 (12%)	60,97,115	1.62	8 (13%)
6	LDA	M	404	-	12,15,15	2.06	1 (8%)	14,17,17	0.43	0
9	SPO	M	407	-	40,41,41	0.17	0	47,50,50	0.51	1 (2%)
6	LDA	M	402	-	12,15,15	2.08	1 (8%)	14,17,17	0.57	0
4	BCL	M	401	-	64,74,74	1.29	5 (7%)	78,115,115	1.43	9 (11%)
8	BPH	M	409	-	51,70,70	0.92	2 (3%)	52,101,101	1.22	5 (9%)
4	BCL	L	301	-	64,74,74	1.27	5 (7%)	78,115,115	1.50	9 (11%)
10	CDL	M	408	-	68,68,99	1.09	6 (8%)	74,80,111	0.90	4 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	BCL	L	302	-	-	2/37/137/137	-
8	BPH	M	406	-	-	3/25/93/105	0/5/6/6
6	LDA	M	403	-	-	9/13/13/13	-
4	BCL	M	410	-	-	3/19/119/137	-
6	LDA	M	404	-	-	6/13/13/13	-
9	SPO	M	407	-	-	6/47/47/47	-
6	LDA	M	402	-	-	7/13/13/13	-
4	BCL	M	401	-	-	1/37/137/137	-
8	BPH	M	409	-	-	8/37/105/105	0/5/6/6
4	BCL	L	301	-	-	4/37/137/137	-
10	CDL	M	408	-	1/1/9/9	33/79/79/110	-

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	M	403	LDA	O1-N1	-7.22	1.25	1.42
6	M	402	LDA	O1-N1	-7.15	1.25	1.42
6	M	404	LDA	O1-N1	-7.07	1.25	1.42
4	M	410	BCL	C1B-NB	5.03	1.39	1.35
4	M	401	BCL	MG-NA	5.00	2.18	2.06
4	L	302	BCL	C1B-NB	4.99	1.39	1.35
4	L	301	BCL	C1B-NB	4.98	1.39	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	M	401	BCL	C1B-NB	4.98	1.39	1.35
4	M	410	BCL	MG-NA	4.96	2.18	2.06
4	L	302	BCL	MG-NA	4.94	2.18	2.06
4	L	301	BCL	MG-NA	4.76	2.17	2.06
8	M	409	BPH	CBD-CGD	-4.53	1.46	1.52
8	M	406	BPH	CBD-CGD	-3.84	1.47	1.52
4	L	302	BCL	MG-NC	3.82	2.15	2.06
4	M	410	BCL	MG-NC	3.51	2.14	2.06
4	M	401	BCL	MG-NC	3.47	2.14	2.06
4	L	301	BCL	MG-NC	3.40	2.14	2.06
10	M	408	CDL	PA1-OA4	-3.16	1.40	1.55
10	M	408	CDL	PB2-OB4	-2.86	1.41	1.55
10	M	408	CDL	PA1-OA3	-2.81	1.40	1.50
10	M	408	CDL	PB2-OB3	-2.77	1.41	1.50
10	M	408	CDL	PB2-OB5	2.68	1.70	1.59
10	M	408	CDL	PA1-OA5	2.64	1.70	1.59
4	L	301	BCL	CHD-C1D	2.50	1.43	1.38
4	M	410	BCL	CHD-C1D	2.48	1.43	1.38
8	M	409	BPH	OBD-CAD	2.33	1.25	1.22
4	M	410	BCL	C4B-NB	2.32	1.37	1.35
4	M	401	BCL	CHD-C1D	2.26	1.42	1.38
4	L	302	BCL	C4B-NB	2.25	1.37	1.35
4	M	401	BCL	C4B-NB	2.21	1.37	1.35
4	M	410	BCL	OBD-CAD	2.16	1.26	1.22
4	L	301	BCL	C4B-NB	2.06	1.37	1.35
8	M	406	BPH	OBD-CAD	2.04	1.25	1.22
4	L	302	BCL	CHD-C1D	2.01	1.42	1.38

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	L	301	BCL	CHD-C1D-ND	-5.82	119.11	124.45
4	M	410	BCL	CHD-C1D-ND	-5.72	119.20	124.45
4	L	302	BCL	CHD-C1D-ND	-5.33	119.55	124.45
4	M	401	BCL	C4D-CHA-C1A	5.17	127.54	121.25
4	M	410	BCL	C4D-CHA-C1A	5.03	127.37	121.25
4	M	401	BCL	CHD-C1D-ND	-4.97	119.88	124.45
4	L	301	BCL	C4D-CHA-C1A	4.93	127.25	121.25
4	L	302	BCL	C4D-CHA-C1A	4.74	127.02	121.25
8	M	409	BPH	C17-C16-C15	4.45	133.68	113.24
8	M	409	BPH	C16-C15-C13	4.14	129.31	115.92
4	M	410	BCL	C1D-ND-C4D	-3.93	103.54	106.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	L	302	BCL	CMB-C2B-C1B	-3.80	122.62	128.46
4	L	301	BCL	CMB-C2B-C1B	-3.67	122.83	128.46
4	L	301	BCL	C1D-ND-C4D	-3.63	103.75	106.33
4	L	302	BCL	C1D-ND-C4D	-3.56	103.81	106.33
4	M	401	BCL	C1D-ND-C4D	-3.51	103.84	106.33
4	M	401	BCL	CMB-C2B-C1B	-3.37	123.28	128.46
4	M	401	BCL	CHA-C1A-NA	-3.35	118.72	126.40
4	M	410	BCL	CMB-C2B-C1B	-3.19	123.56	128.46
8	M	406	BPH	OBD-CAD-CBD	-3.12	121.25	125.82
10	M	408	CDL	CB4-OB6-CB5	3.11	125.44	117.79
4	M	410	BCL	C4A-NA-C1A	3.08	108.09	106.71
8	M	409	BPH	OBD-CAD-CBD	-2.99	121.43	125.82
4	L	301	BCL	C4A-NA-C1A	2.95	108.03	106.71
4	L	302	BCL	CHA-C1A-NA	-2.91	119.74	126.40
4	M	410	BCL	CHA-C1A-NA	-2.88	119.80	126.40
10	M	408	CDL	OA4-PA1-OA3	2.84	126.30	112.24
4	L	302	BCL	C17-C16-C15	-2.83	100.22	113.24
4	M	401	BCL	C4A-NA-C1A	2.80	107.96	106.71
4	M	410	BCL	C2A-C1A-CHA	2.78	128.73	123.86
4	L	302	BCL	C2A-C1A-CHA	2.77	128.71	123.86
4	L	301	BCL	CHA-C1A-NA	-2.77	120.06	126.40
4	L	301	BCL	CMB-C2B-C3B	2.75	129.82	124.68
4	L	302	BCL	CMB-C2B-C3B	2.73	129.78	124.68
8	M	406	BPH	CMD-C2D-C3D	2.64	129.61	124.68
10	M	408	CDL	OB4-PB2-OB3	2.60	125.10	112.24
4	M	401	BCL	C2A-C1A-CHA	2.54	128.31	123.86
4	L	301	BCL	C2A-C1A-CHA	2.53	128.28	123.86
8	M	409	BPH	CMD-C2D-C3D	2.38	129.13	124.68
4	L	302	BCL	C15-C13-C12	-2.31	100.00	112.13
4	M	401	BCL	CMB-C2B-C3B	2.31	128.99	124.68
4	L	302	BCL	OBB-CAB-CBB	-2.29	115.02	120.17
8	M	406	BPH	CMB-C2B-C3B	2.26	128.91	124.68
4	L	301	BCL	C4B-C3B-CAB	-2.26	122.76	127.13
4	M	401	BCL	C1-C2-C3	-2.23	122.19	126.04
4	M	410	BCL	CMB-C2B-C3B	2.20	128.79	124.68
8	M	409	BPH	CMB-C2B-C3B	2.19	128.77	124.68
4	L	302	BCL	C2D-C1D-ND	2.10	111.65	110.10
4	L	302	BCL	O2D-CGD-CBD	2.10	114.99	111.27
9	M	407	SPO	C2-C1-C4	-2.03	107.75	110.86
4	L	302	BCL	C11-C10-C8	-2.02	109.39	115.92
10	M	408	CDL	OA6-CA5-OA7	-2.02	118.83	123.70
4	L	302	BCL	O2A-CGA-O1A	-2.01	118.53	123.59

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
10	M	408	CDL	CA4

All (82) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	L	301	BCL	C2C-C3C-CAC-CBC
6	M	403	LDA	C2-C1-N1-CM1
6	M	403	LDA	N1-C1-C2-C3
8	M	409	BPH	C4C-C3C-CAC-CBC
8	M	409	BPH	C2C-C3C-CAC-CBC
9	M	407	SPO	C4-C1-O1-CM1
10	M	408	CDL	CA2-C1-CB2-OB2
10	M	408	CDL	CA2-OA2-PA1-OA4
10	M	408	CDL	C11-CA5-OA6-CA4
10	M	408	CDL	CB3-OB5-PB2-OB2
10	M	408	CDL	CB3-OB5-PB2-OB3
10	M	408	CDL	C51-CB5-OB6-CB4
10	M	408	CDL	OA7-CA5-OA6-CA4
10	M	408	CDL	OB7-CB5-OB6-CB4
10	M	408	CDL	O1-C1-CB2-OB2
10	M	408	CDL	C31-CA7-OA8-CA6
10	M	408	CDL	OA9-CA7-OA8-CA6
9	M	407	SPO	C28-C30-C31-C32
9	M	407	SPO	C25-C26-C27-C28
8	M	409	BPH	C14-C13-C15-C16
10	M	408	CDL	CA7-C31-C32-C33
4	L	301	BCL	C15-C16-C17-C18
10	M	408	CDL	C71-CB7-OB8-CB6
10	M	408	CDL	CA2-OA2-PA1-OA5
10	M	408	CDL	CB2-OB2-PB2-OB5
6	M	402	LDA	C4-C5-C6-C7
10	M	408	CDL	C36-C37-C38-C39
6	M	403	LDA	C4-C5-C6-C7
6	M	403	LDA	C7-C8-C9-C10
10	M	408	CDL	C33-C34-C35-C36
6	M	402	LDA	C11-C10-C9-C8
10	M	408	CDL	OB9-CB7-OB8-CB6
8	M	409	BPH	C4-C3-C5-C6
8	M	409	BPH	C2-C3-C5-C6
6	M	404	LDA	C1-C2-C3-C4
6	M	402	LDA	C2-C3-C4-C5
6	M	403	LDA	C11-C10-C9-C8

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Mol	Chain	Res	Type	Atoms
10	M	408	CDL	C12-C13-C14-C15
6	M	403	LDA	C5-C6-C7-C8
6	M	402	LDA	C7-C8-C9-C10
6	M	403	LDA	C1-C2-C3-C4
10	M	408	CDL	CB5-C51-C52-C53
10	M	408	CDL	C16-C17-C18-C19
8	M	406	BPH	C4-C3-C5-C6
6	M	403	LDA	C9-C10-C11-C12
10	M	408	CDL	CA6-CA4-OA6-CA5
10	M	408	CDL	CB3-CB4-OB6-CB5
9	M	407	SPO	C2-C1-O1-CM1
10	M	408	CDL	C75-C76-C77-C78
6	M	402	LDA	C1-C2-C3-C4
10	M	408	CDL	OB5-CB3-CB4-CB6
6	M	404	LDA	C9-C10-C11-C12
10	M	408	CDL	OB5-CB3-CB4-OB6
6	M	404	LDA	C7-C8-C9-C10
4	M	410	BCL	C2-C1-O2A-CGA
4	L	301	BCL	C4C-C3C-CAC-CBC
6	M	403	LDA	C2-C3-C4-C5
4	M	410	BCL	CAD-CBD-CGD-O2D
8	M	406	BPH	CAD-CBD-CGD-O2D
8	M	409	BPH	CAD-CBD-CGD-O2D
6	M	404	LDA	C2-C1-N1-CM1
10	M	408	CDL	CB2-OB2-PB2-OB3
10	M	408	CDL	CB2-OB2-PB2-OB4
6	M	404	LDA	C2-C1-N1-O1
8	M	409	BPH	C12-C13-C15-C16
8	M	406	BPH	C2-C3-C5-C6
4	L	302	BCL	C2-C1-O2A-CGA
9	M	407	SPO	C3-C1-O1-CM1
10	M	408	CDL	C74-C75-C76-C77
6	M	402	LDA	C5-C6-C7-C8
10	M	408	CDL	CA5-C11-C12-C13
10	M	408	CDL	OA5-CA3-CA4-OA6
6	M	404	LDA	C6-C7-C8-C9
4	M	410	BCL	C4C-C3C-CAC-CBC
10	M	408	CDL	C51-C52-C53-C54
4	L	301	BCL	CAD-CBD-CGD-O2D
8	M	409	BPH	O2A-C1-C2-C3
4	L	302	BCL	C15-C16-C17-C18
10	M	408	CDL	OA5-CA3-CA4-CA6

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Mol	Chain	Res	Type	Atoms
9	M	407	SPO	C5-C6-C7-C9
6	M	402	LDA	C3-C4-C5-C6
4	M	401	BCL	CAA-CBA-CGA-O2A

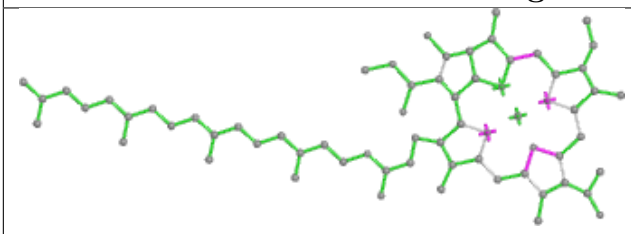
There are no ring outliers.

9 monomers are involved in 40 short contacts:

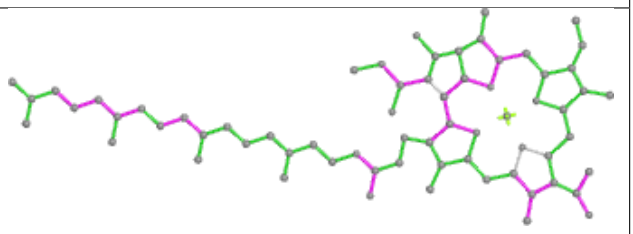
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	L	302	BCL	10	0
8	M	406	BPH	4	0
6	M	403	LDA	2	0
4	M	410	BCL	5	0
9	M	407	SPO	3	0
4	M	401	BCL	6	0
8	M	409	BPH	7	0
4	L	301	BCL	5	0
10	M	408	CDL	5	0

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.

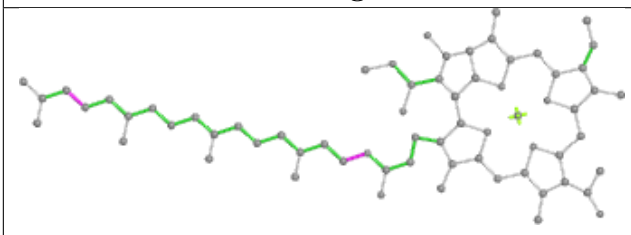
Ligand BCL L 302



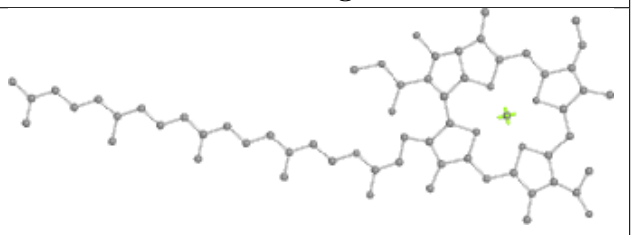
Bond lengths



Bond angles

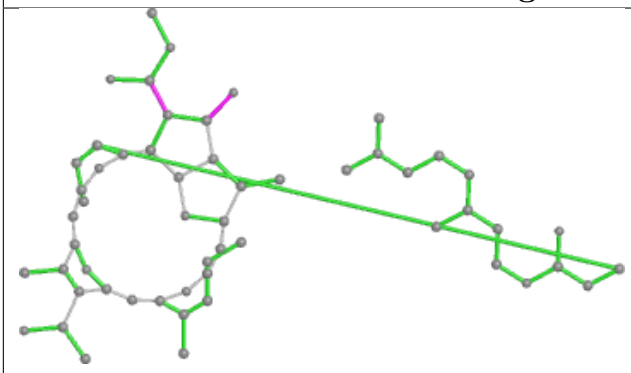


Torsions

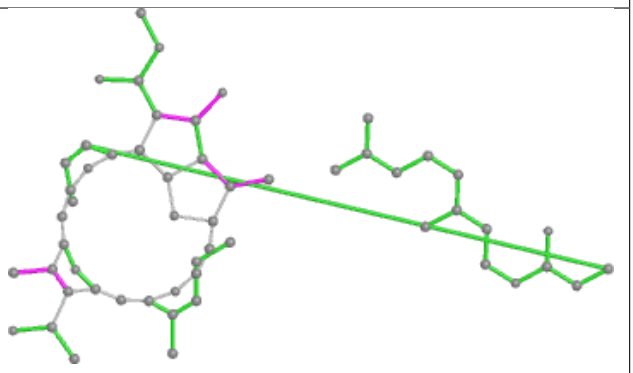


Rings

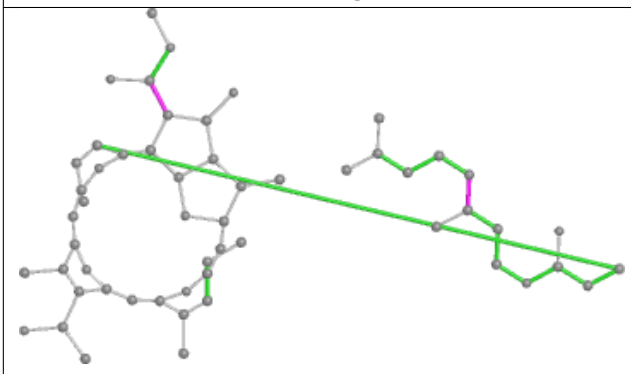
Ligand BPH M 406



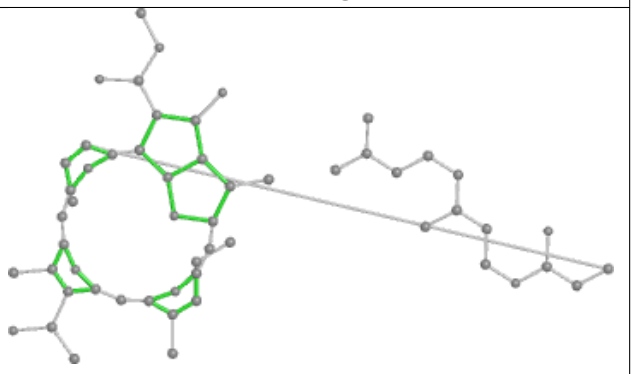
Bond lengths



Bond angles

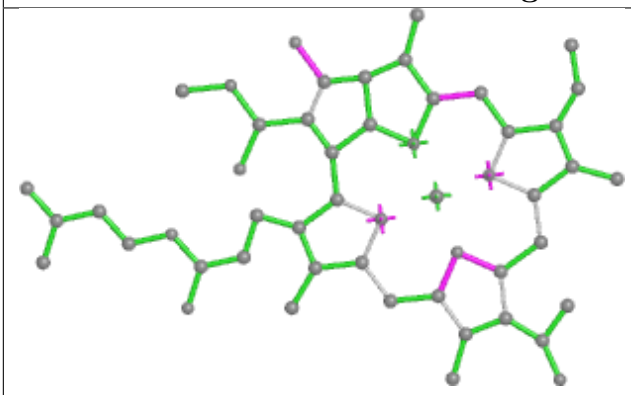


Torsions

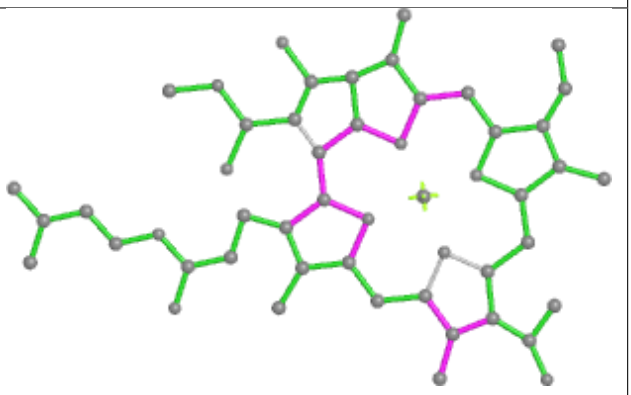


Rings

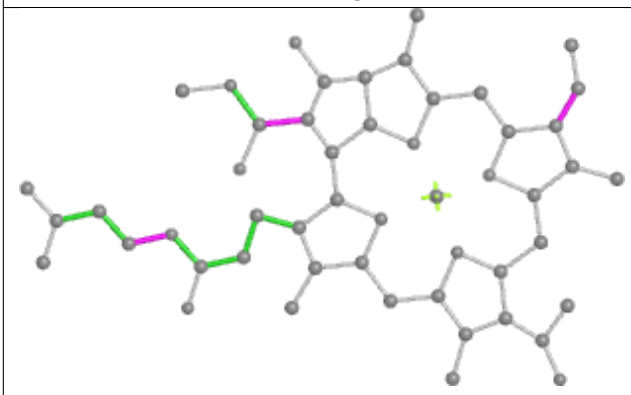
Ligand BCL M 410



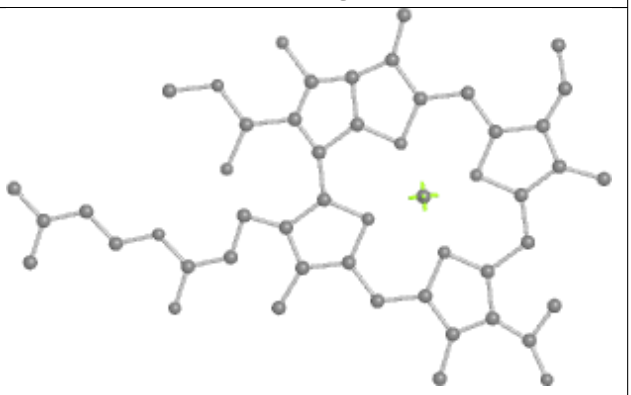
Bond lengths



Bond angles

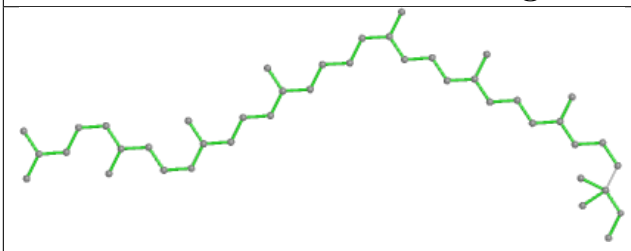


Torsions

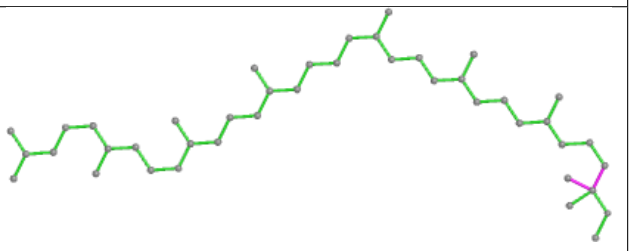


Rings

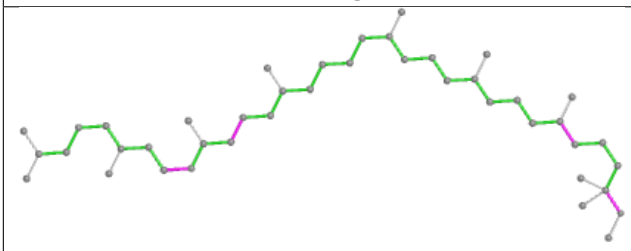
Ligand SPO M 407



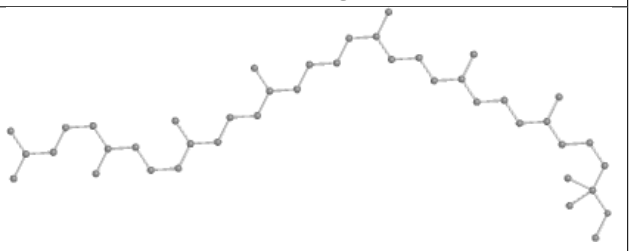
Bond lengths



Bond angles

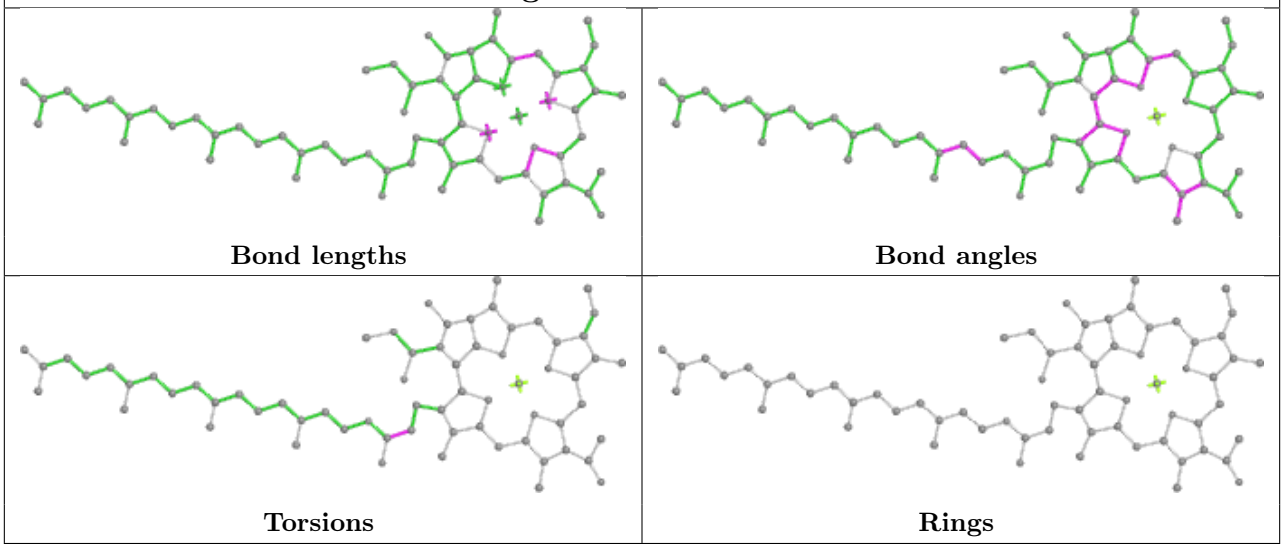


Torsions

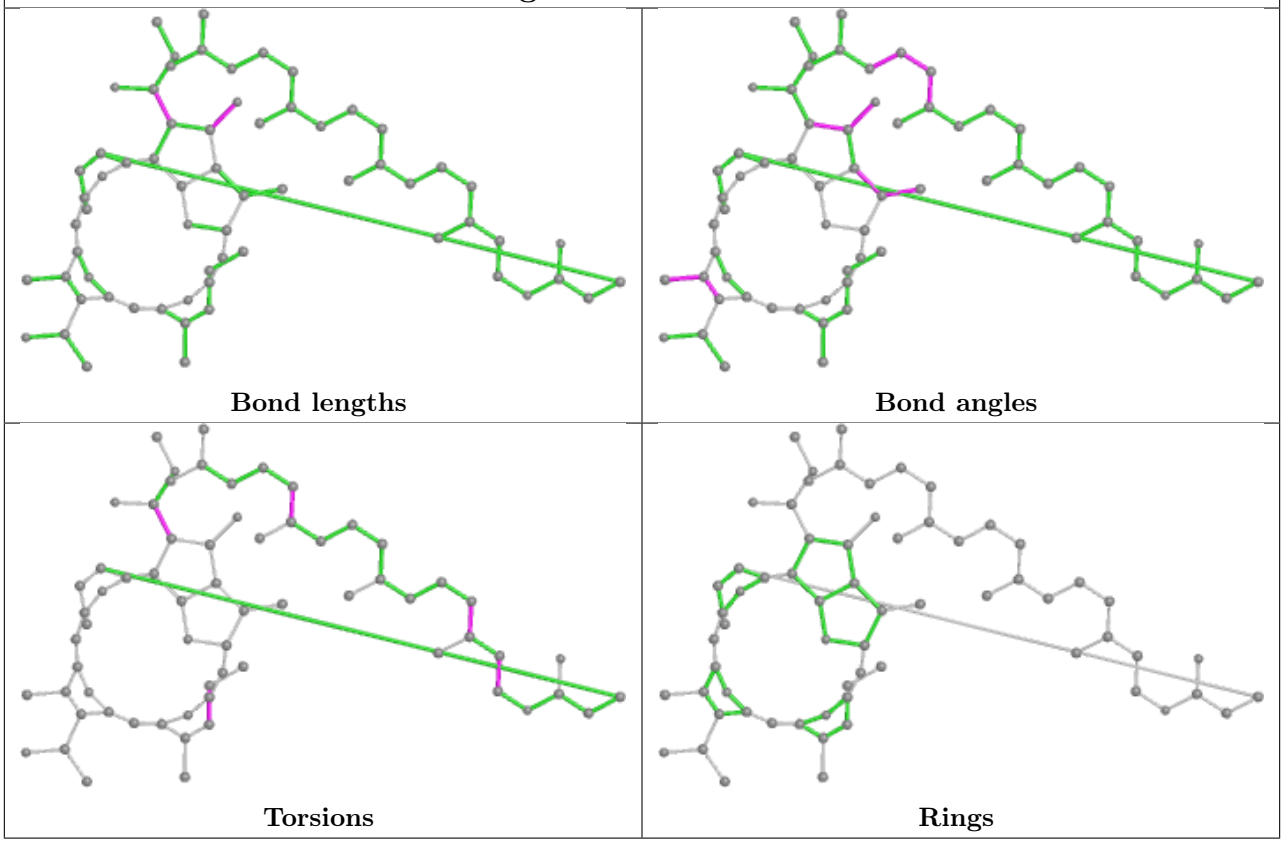


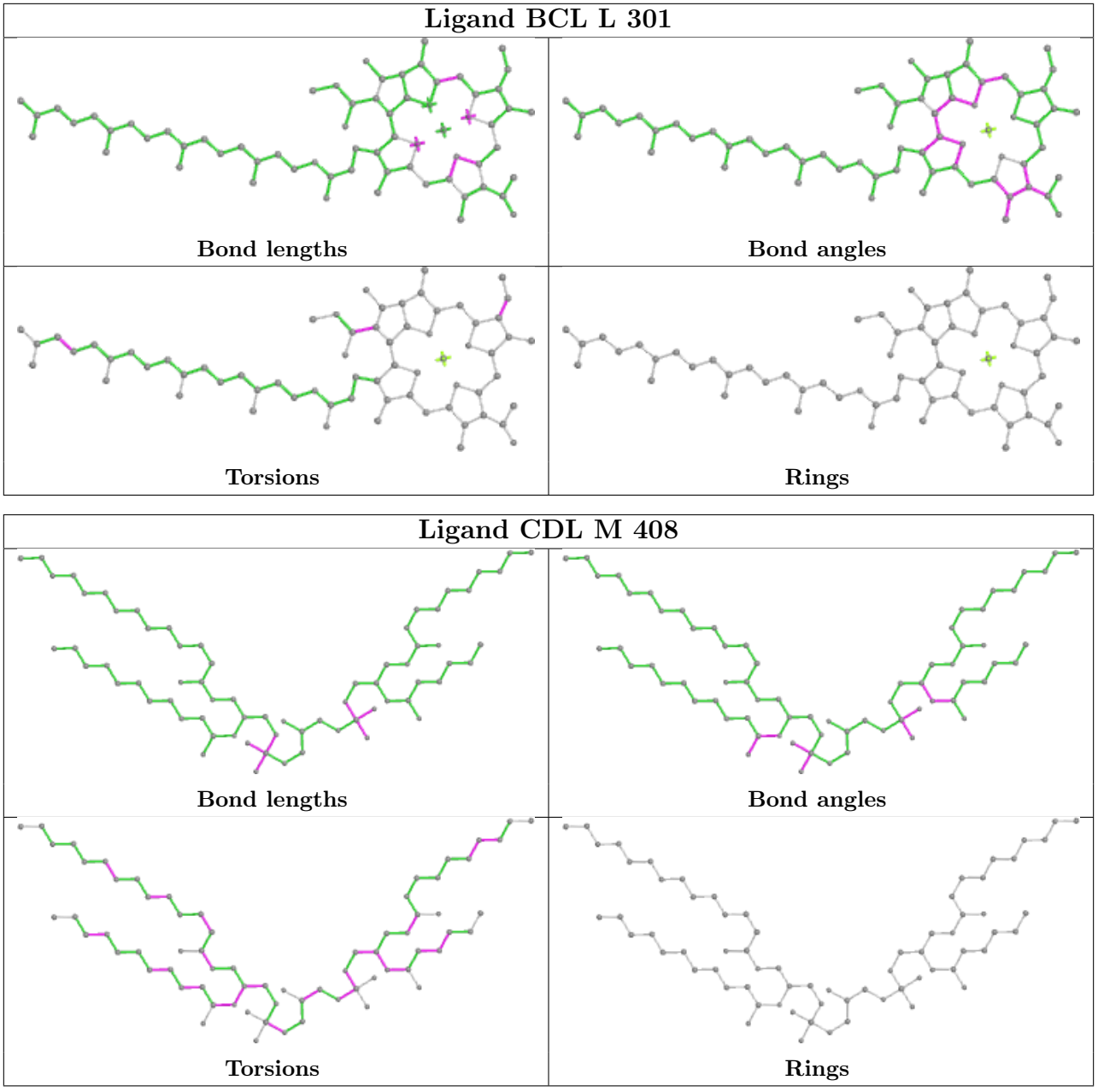
Rings

Ligand BCL M 401



Ligand BPH M 409





5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	H	240/240 (100%)	-0.48	4 (1%) 70 53	60, 77, 112, 195	0
2	L	281/281 (100%)	-0.71	0 100 100	55, 72, 116, 172	0
3	M	300/301 (99%)	-0.75	0 100 100	54, 75, 107, 162	0
All	All	821/822 (99%)	-0.66	4 (0%) 91 82	54, 75, 112, 195	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	250	SER	4.7
1	H	246	PRO	4.6
1	H	249	LYS	2.7
1	H	245	ALA	2.4

6.2 Non-standard residues in protein, DNA, RNA chains

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	A1ADY	M	210	14/15	0.95	0.18	57,65,72,78	0

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands (i)

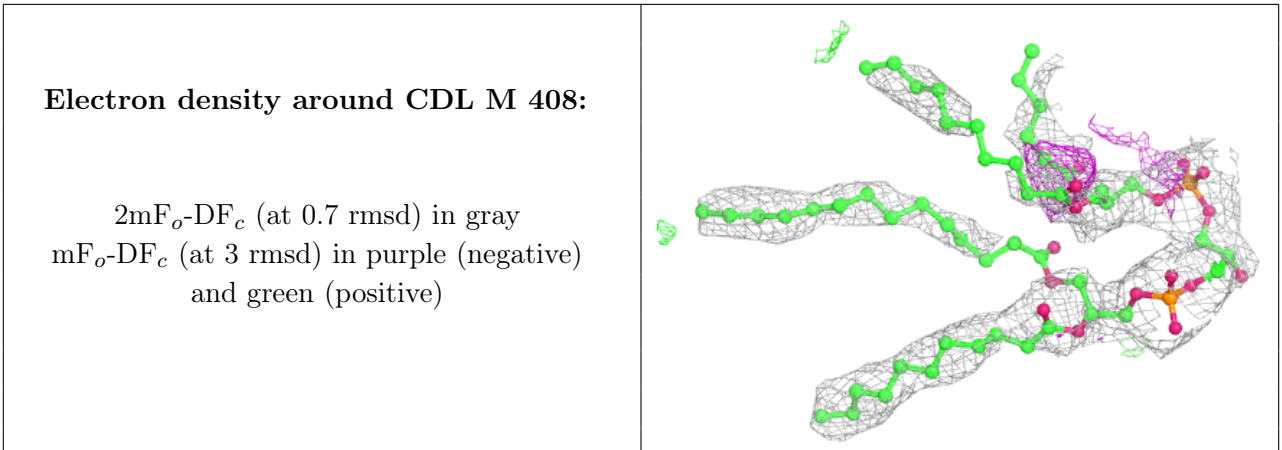
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	LDA	M	404	16/16	0.59	0.52	115,136,149,154	0
6	LDA	M	402	16/16	0.77	0.40	71,86,127,127	0
6	LDA	M	403	16/16	0.78	0.56	88,96,107,112	0
10	CDL	M	408	69/100	0.83	0.45	81,109,135,139	0
5	CL	L	303	1/1	0.84	0.23	102,102,102,102	0
9	SPO	M	407	42/42	0.94	0.38	67,76,88,93	0
4	BCL	M	401	66/66	0.94	0.22	54,67,79,92	0
4	BCL	L	301	66/66	0.95	0.22	58,69,78,86	0
8	BPH	M	406	55/65	0.96	0.22	56,65,87,96	0
8	BPH	M	409	65/65	0.96	0.17	55,64,75,81	0
4	BCL	L	302	66/66	0.96	0.18	52,64,77,84	0
4	BCL	M	410	51/66	0.96	0.18	52,64,74,77	0
7	FE	M	405	1/1	1.00	0.11	57,57,57,57	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

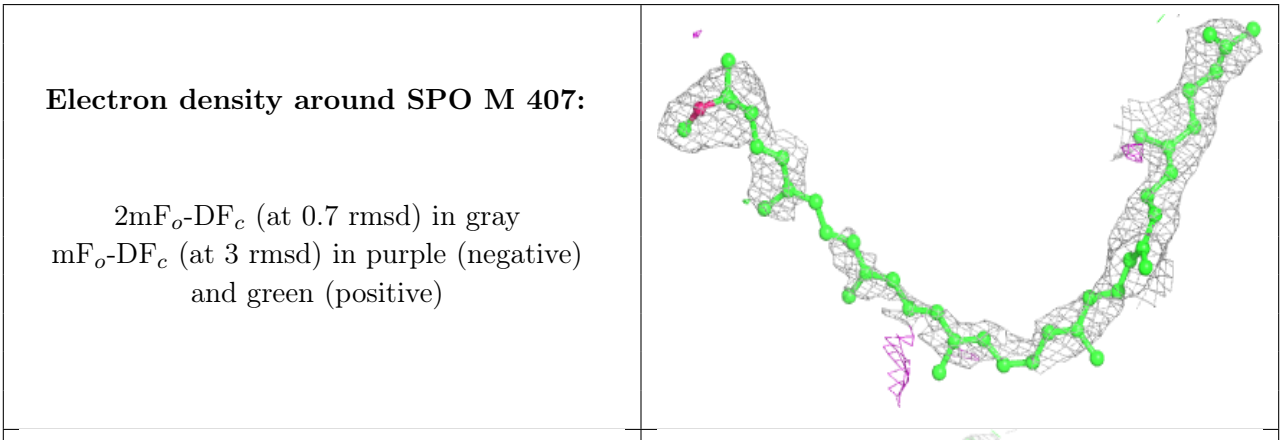
Electron density around CDL M 408:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



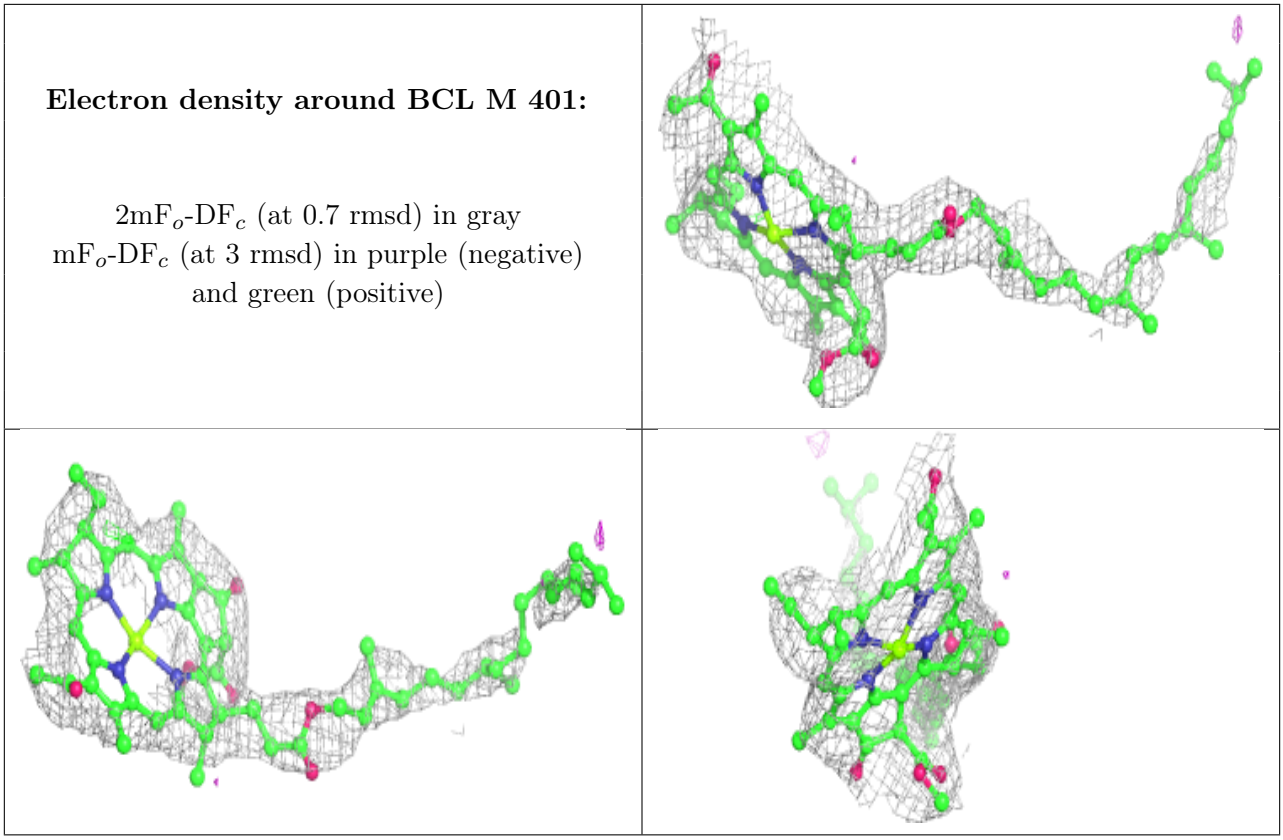
Electron density around SPO M 407:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



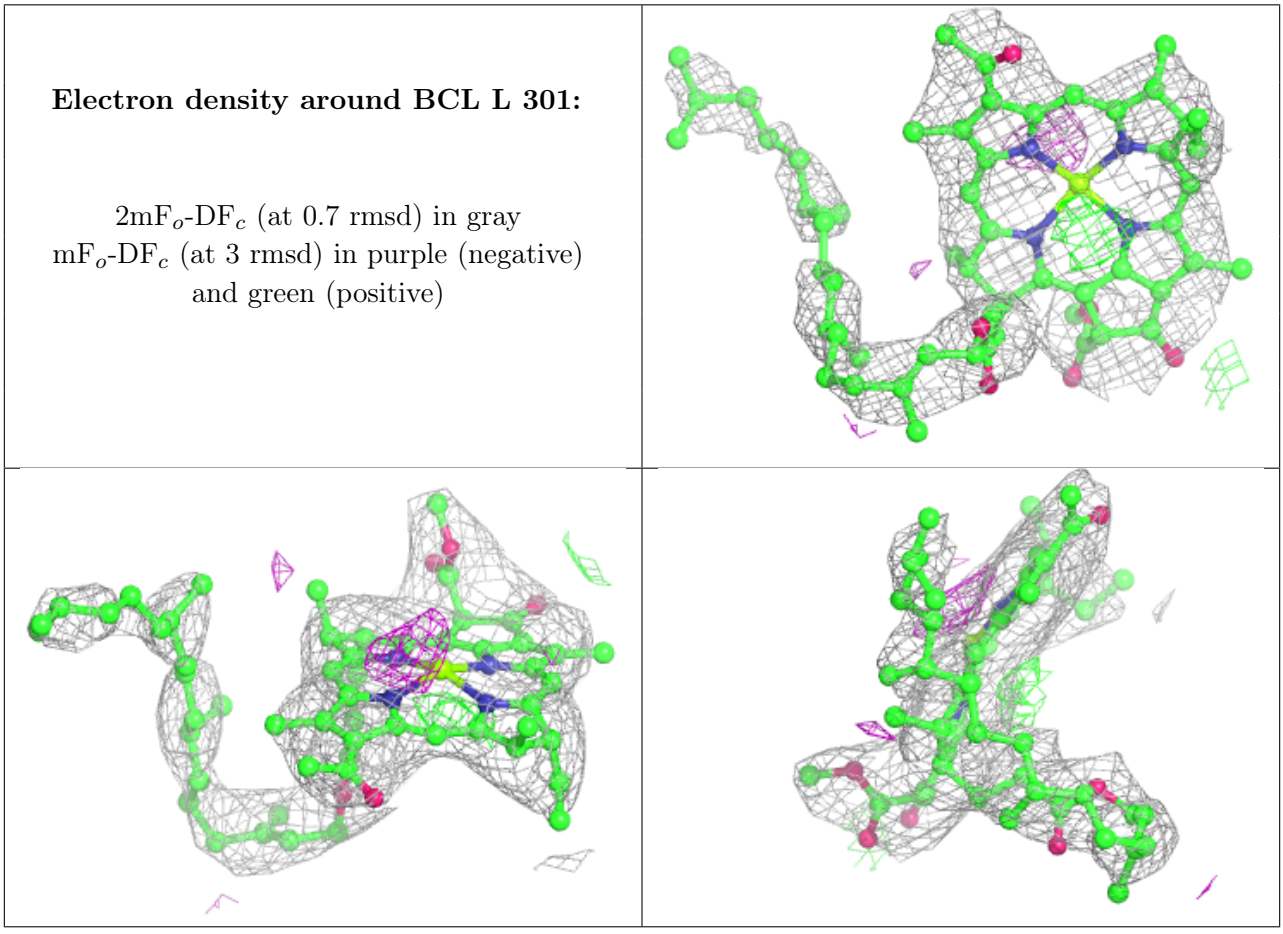
Electron density around BCL M 401:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



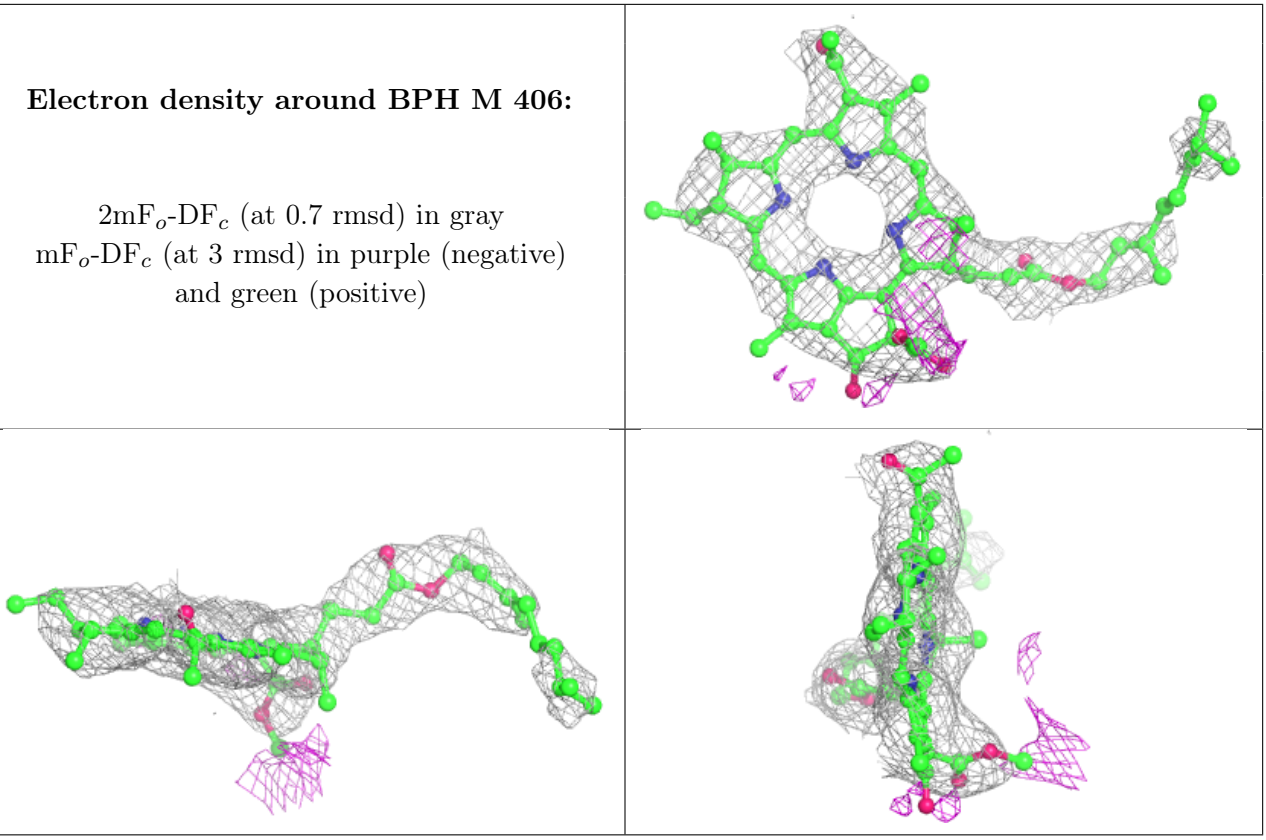
Electron density around BCL L 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



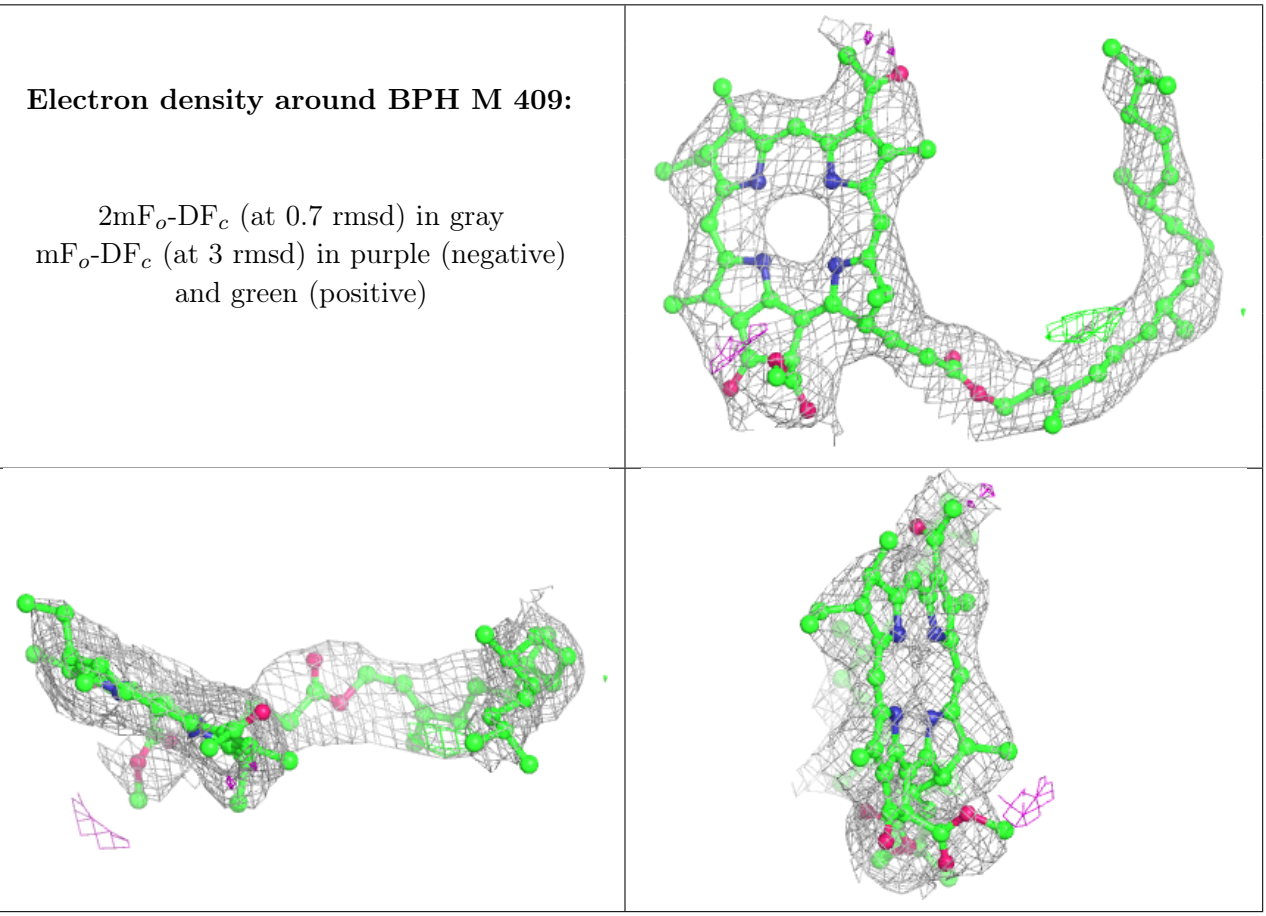
Electron density around BPH M 406:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



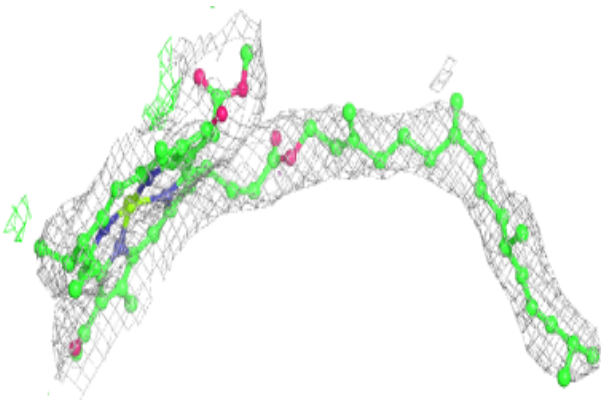
Electron density around BPH M 409:

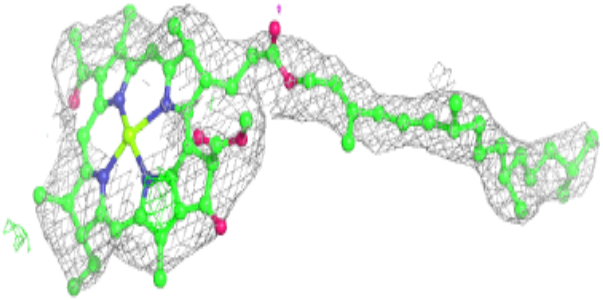
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

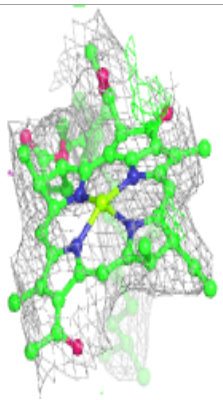


Electron density around BCL L 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)







Electron density around BCL M 410:

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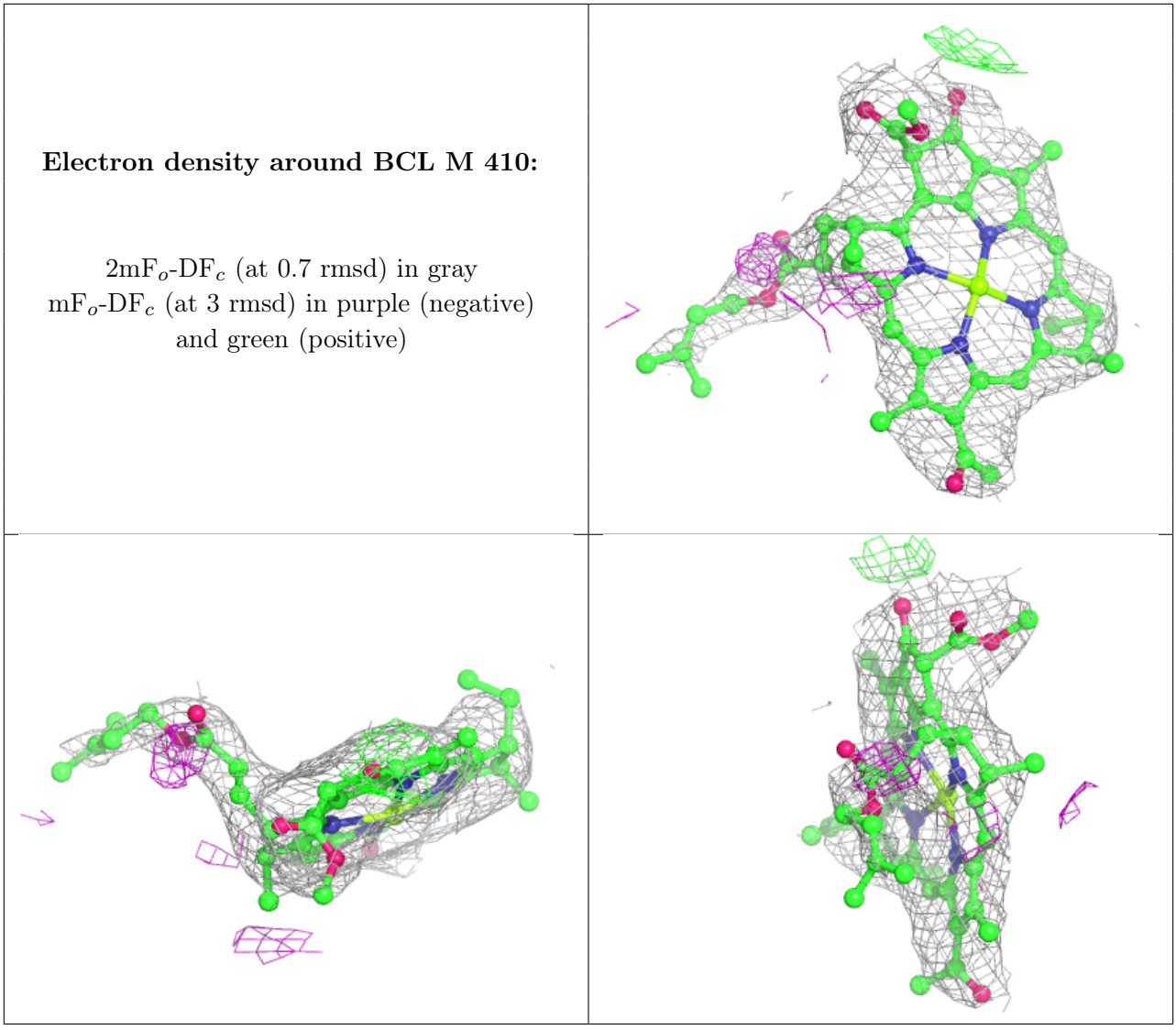
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers

There are no such residues in this entry.