



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2024 – 02:19 PM EST

PDB ID : 8VTL  
Title : Crystal structure of *R. sphaeroides* Photosynthetic Reaction Center variant Y (M210)2-methoxyphenylalanine  
Authors : Tran, K.; Mathews, I.; Boxer, S.G.  
Deposited on : 2024-01-26  
Resolution : 3.05 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](mailto: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>.

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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

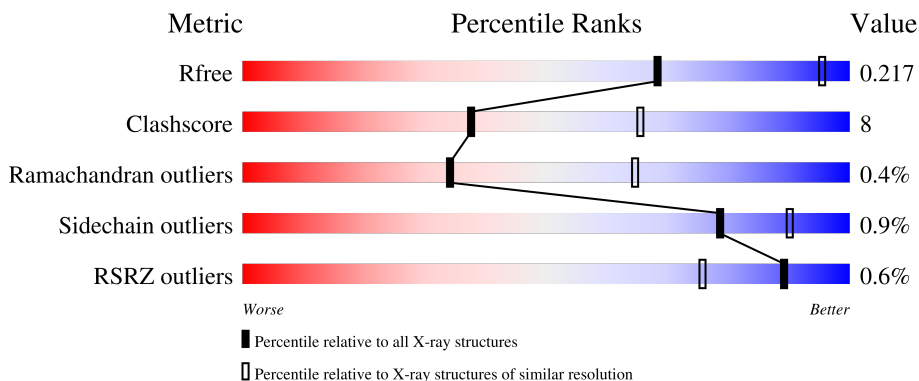
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.05 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1754 (3.10-3.02)
Clashscore	141614	1864 (3.10-3.02)
Ramachandran outliers	138981	1794 (3.10-3.02)
Sidechain outliers	138945	1793 (3.10-3.02)
RSRZ outliers	127900	1713 (3.10-3.02)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	H	240	 2% 80% 20%
2	L	281	 90% 10%
3	M	301	 84% 15%

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	407	X	-	-	-

## 2 Entry composition [i](#)

There are 11 unique types of molecules in this entry. The entry contains 7019 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
			Total	C	N	O	S			
1	H	240	1829	1169	314	337	9	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	L	281	2248	1517	357	366	8	0	2	0

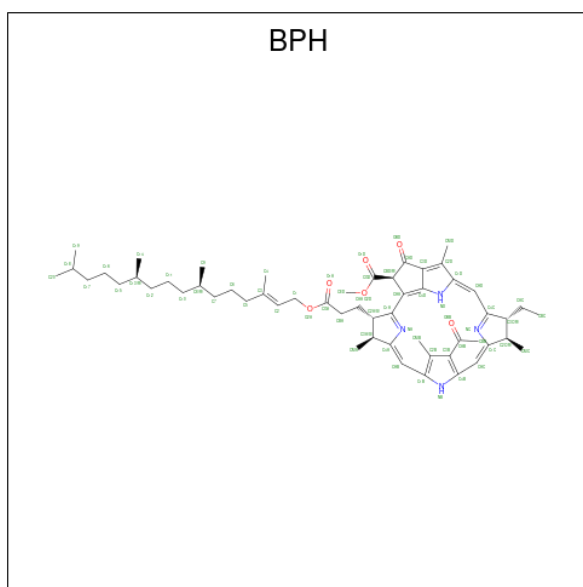
- Molecule 3 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	M	301	2397	1599	392	396	10	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

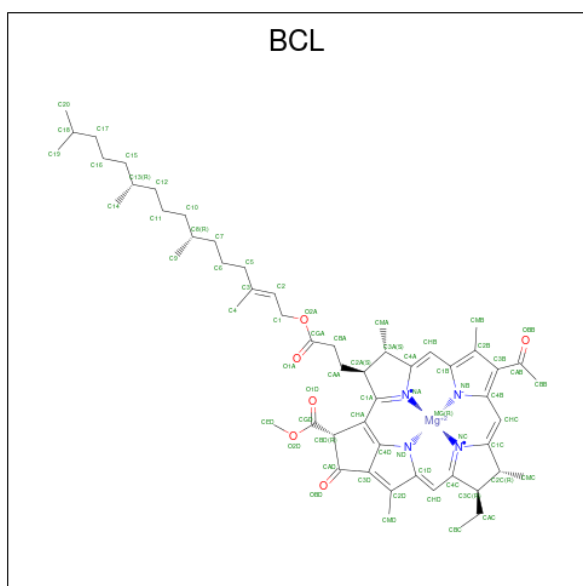
Chain	Residue	Modelled	Actual	Comment	Reference
M	210	A1ADZ	TYR	conflict	UNP P0C0Y9
M	252	VAL	TRP	conflict	UNP P0C0Y9

- Molecule 4 is BACTERIOPHEOPHYTIN A (three-letter code: BPH) (formula: C<sub>55</sub>H<sub>76</sub>N<sub>4</sub>O<sub>6</sub>) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 5 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
			Total	C	Mg	N	O		
5	L	1	66	55	1	4	6	0	0

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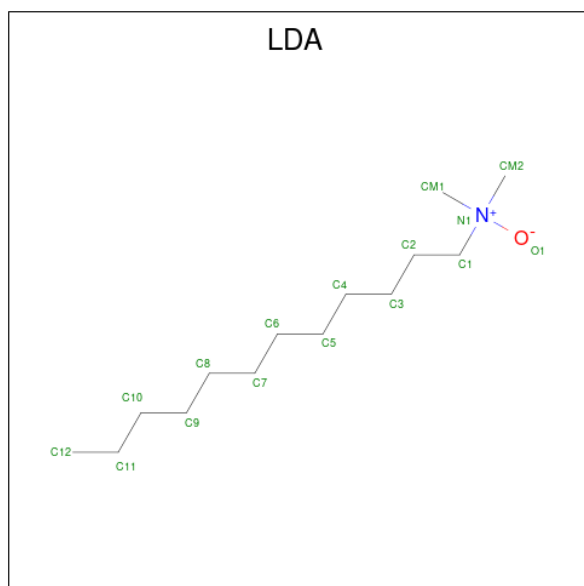
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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
5	L	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
5	M	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
5	M	1	Total	C	Mg	N	O	0	0
			51	40	1	4	6		

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

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

- Molecule 7 is LAURYL DIMETHYLAMINE-N-OXIDE (three-letter code: LDA) (formula: C<sub>14</sub>H<sub>31</sub>NO).

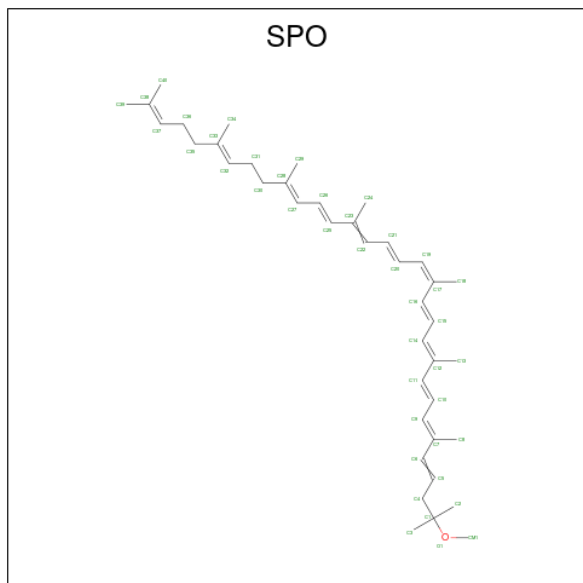


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	M	1	Total	C	N	O	0	0
			16	14	1	1		
7	M	1	Total	C	N	O	0	0
			16	14	1	1		
7	M	1	Total	C	N	O	0	0
			16	14	1	1		

- Molecule 8 is FE (III) ION (three-letter code: FE) (formula: Fe).

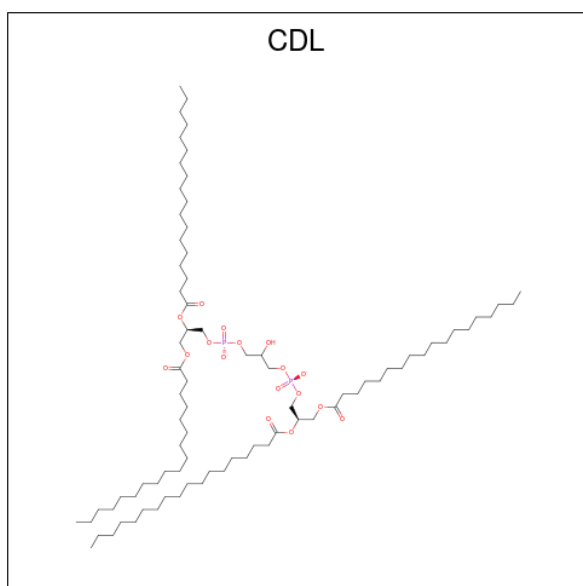
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	M	1	Total	Fe	0	0
			1	1		

- 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
			Total	C	O	P		
10	M	1	69	50	17	2	0	0

- Molecule 11 is water.

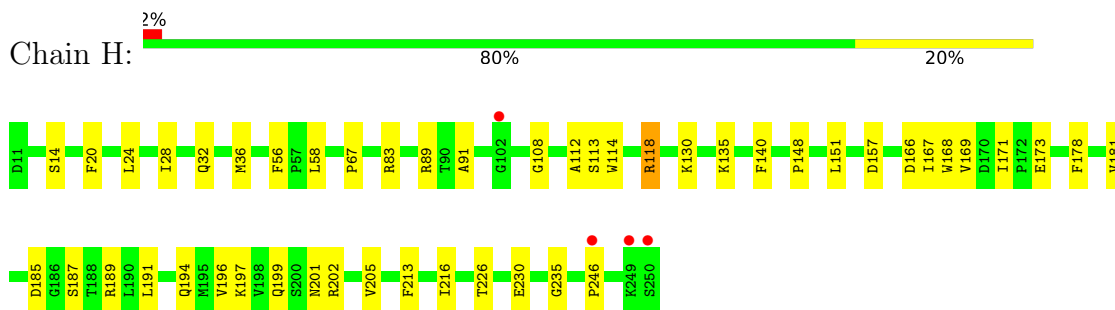
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	H	5	Total 5	O 5	0	0
11	L	5	Total 5	O 5	0	0
11	M	5	Total 5	O 5	0	0



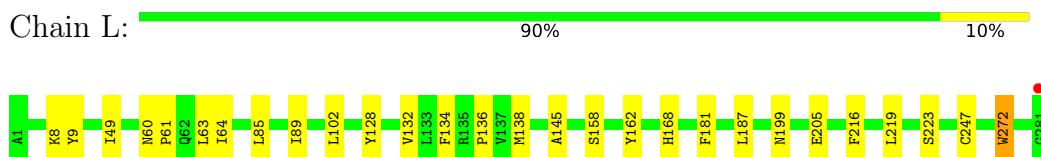
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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.

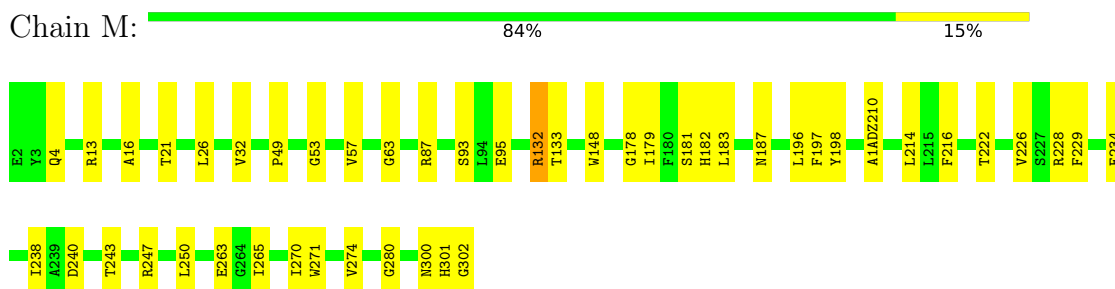
- Molecule 1: Reaction center protein H chain



- Molecule 2: Reaction center protein L chain



- Molecule 3: Reaction center protein M chain



## 4 Data and refinement statistics i

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	141.43Å 141.43Å 187.41Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	39.89 – 3.05 39.89 – 3.05	Depositor EDS
% Data completeness (in resolution range)	99.9 (39.89-3.05) 91.4 (39.89-3.05)	Depositor EDS
$R_{merge}$	0.21	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.49 (at 3.06Å)	Xtrriage
Refinement program	PHENIX (1.19.2_4158: ???)	Depositor
R, $R_{free}$	0.181 , 0.216 0.182 , 0.217	Depositor DCC
$R_{free}$ test set	2104 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	66.0	Xtrriage
Anisotropy	0.106	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 55.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.025 for -h,-k,l	Xtrriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	7019	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	64.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.85% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: CDL, LDA, FE, BPH, A1ADZ, BCL, CL, SPO

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	0.53	0/1877	0.69	0/2553
2	L	0.52	0/2336	0.62	0/3197
3	M	0.49	0/2472	0.62	0/3372
All	All	0.51	0/6685	0.64	0/9122

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	H	1829	0	1834	38	0
2	L	2248	0	2200	22	0
3	M	2397	0	2300	41	0
4	L	55	0	53	8	0
4	M	65	0	76	3	0
5	L	132	0	148	5	0
5	M	117	0	115	13	0
6	L	1	0	0	0	0
7	M	48	0	93	3	0
8	M	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	M	42	0	60	1	0
10	M	69	0	82	2	0
11	H	5	0	0	0	0
11	L	5	0	0	0	0
11	M	5	0	0	1	0
All	All	7019	0	6961	107	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (107) 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)
3:M:93:SER:OG	3:M:95:GLU:OE2	1.69	1.09
1:H:118:ARG:HG3	1:H:118:ARG:HH11	1.19	1.05
3:M:21:THR:HG23	3:M:26:LEU:HD21	1.60	0.81
1:H:148:PRO:HA	1:H:151:LEU:HD12	1.68	0.76
3:M:197:PHE:HZ	5:M:401:BCL:HBB2	1.51	0.75
2:L:199:ASN:HB3	10:M:407:CDL:HA22	1.69	0.73
1:H:118:ARG:HG3	1:H:118:ARG:NH1	1.93	0.71
1:H:118:ARG:HH12	3:M:240:ASP:HB2	1.53	0.70
3:M:234:GLU:O	3:M:238:ILE:HG13	1.91	0.70
2:L:219:LEU:O	3:M:132:ARG:NH2	2.24	0.70
4:L:301:BPH:H6C1	5:M:401:BCL:H192	1.74	0.70
1:H:189:ARG:HD2	1:H:216:ILE:HB	1.74	0.69
2:L:49:ILE:HD12	2:L:89:ILE:HD13	1.73	0.69
3:M:214:LEU:HD13	4:M:408:BPH:ND	2.11	0.66
4:M:408:BPH:HBB3	4:M:408:BPH:HHC	1.77	0.65
3:M:197:PHE:CZ	5:M:401:BCL:HBB2	2.31	0.65
3:M:4:GLN:NE2	11:M:501:HOH:O	2.30	0.63
5:L:302:BCL:HBB2	5:L:302:BCL:HHC	1.82	0.61
1:H:135:LYS:HE3	1:H:166:ASP:OD2	2.01	0.61
3:M:238:ILE:HD13	3:M:263:GLU:HB2	1.83	0.60
4:L:301:BPH:H5C1	3:M:63:GLY:HA3	1.85	0.59
1:H:118:ARG:NH1	3:M:240:ASP:HB2	2.18	0.58
3:M:243:THR:O	3:M:247:ARG:HG3	2.02	0.58
2:L:134:PHE:O	2:L:138:MET:HG3	2.03	0.57
3:M:32:VAL:HG12	3:M:49:PRO:HD3	1.85	0.57
1:H:197:LYS:HD3	1:H:199:GLN:HE21	1.69	0.57
5:M:401:BCL:H41	5:M:409:BCL:HBB3	1.86	0.57
1:H:148:PRO:HD2	1:H:167:ILE:HD11	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:85:LEU:O	2:L:89:ILE:HG13	2.05	0.56
1:H:191:LEU:HD11	1:H:213:PHE:HE2	1.70	0.56
1:H:118:ARG:NH1	3:M:240:ASP:OD2	2.39	0.55
2:L:61:PRO:HA	2:L:64:ILE:HD12	1.87	0.55
5:M:409:BCL:HHC	5:M:409:BCL:HBB2	1.88	0.55
2:L:181:PHE:HB3	4:L:301:BPH:HBB2	1.89	0.55
5:M:401:BCL:CBB	5:M:401:BCL:HHC	2.36	0.55
1:H:83:ARG:HD2	1:H:114:TRP:CH2	2.41	0.55
5:L:302:BCL:HBB3	5:L:303:BCL:H52	1.91	0.53
1:H:83:ARG:NH1	1:H:114:TRP:O	2.41	0.53
5:L:303:BCL:HHC	5:L:303:BCL:OBB	2.08	0.52
1:H:89:ARG:HD3	1:H:91:ALA:O	2.09	0.52
2:L:272:TRP:CD1	3:M:87:ARG:HG3	2.45	0.52
1:H:169:VAL:HG23	1:H:171:ILE:HD12	1.92	0.52
1:H:28:ILE:HD11	7:M:402:LDA:H112	1.93	0.51
1:H:181:VAL:HG21	1:H:191:LEU:HD12	1.93	0.50
4:L:301:BPH:HBC3	4:L:301:BPH:HHD	1.92	0.50
3:M:178:GLY:HA3	3:M:181:SER:HB3	1.94	0.49
3:M:228:ARG:HG3	3:M:229:PHE:CE2	2.47	0.49
1:H:194:GLN:OE1	1:H:194:GLN:N	2.36	0.49
1:H:157:ASP:OD1	1:H:157:ASP:N	2.46	0.48
1:H:118:ARG:HH12	3:M:240:ASP:CB	2.22	0.48
2:L:136:PRO:HG3	2:L:145:ALA:HB2	1.95	0.48
3:M:93:SER:CB	3:M:95:GLU:OE2	2.61	0.48
3:M:197:PHE:CE1	5:M:401:BCL:HMC2	2.48	0.48
2:L:168:HIS:HB3	3:M:183:LEU:HD13	1.95	0.47
2:L:181:PHE:HB3	4:L:301:BPH:CBB	2.44	0.47
3:M:270:ILE:O	3:M:274:VAL:HG13	2.14	0.47
5:M:409:BCL:HHC	5:M:409:BCL:CBB	2.45	0.47
1:H:196:VAL:HG12	1:H:205:VAL:HG22	1.96	0.47
3:M:300:ASN:C	3:M:302:GLY:H	2.18	0.47
1:H:201:ASN:HD21	1:H:202:ARG:NH2	2.12	0.47
2:L:219:LEU:HD11	3:M:133:THR:HG22	1.97	0.47
1:H:185:ASP:OD1	1:H:187:SER:OG	2.24	0.46
1:H:20:PHE:CE2	1:H:24:LEU:HD22	2.51	0.45
1:H:14:SER:OG	3:M:302:GLY:HA3	2.17	0.45
2:L:8:LYS:HE2	2:L:9:TYR:CE2	2.52	0.45
2:L:216:PHE:HB2	2:L:223:SER:HB2	1.98	0.45
4:M:408:BPH:HHC	4:M:408:BPH:CBB	2.44	0.45
1:H:118:ARG:HG3	3:M:240:ASP:OD2	2.17	0.44
5:M:401:BCL:HBB2	5:M:401:BCL:HHC	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:140:PHE:HA	3:M:13:ARG:O	2.18	0.44
3:M:16:ALA:HB1	3:M:32:VAL:HG11	1.99	0.44
5:M:401:BCL:HAA2	5:M:409:BCL:HBC1	1.98	0.44
3:M:148:TRP:CD1	10:M:407:CDL:H522	2.52	0.44
3:M:300:ASN:O	3:M:302:GLY:N	2.51	0.44
2:L:60:ASN:HB3	2:L:63:LEU:HD12	1.98	0.44
1:H:168:TRP:HB2	1:H:178:PHE:HB2	1.99	0.44
2:L:158:SER:HA	5:L:303:BCL:HBC1	1.99	0.44
5:L:302:BCL:HHC	5:L:302:BCL:CBB	2.47	0.44
7:M:404:LDA:HM13	7:M:404:LDA:H21	1.77	0.44
3:M:222:THR:O	3:M:226:VAL:HG22	2.18	0.43
2:L:162:TYR:OH	3:M:187:ASN:OD1	2.26	0.43
1:H:130:LYS:NZ	1:H:173:GLU:HG3	2.33	0.43
2:L:187:LEU:HD13	3:M:216:PHE:CG	2.54	0.43
3:M:271:TRP:HA	3:M:274:VAL:HG22	2.01	0.43
3:M:300:ASN:C	3:M:302:GLY:N	2.71	0.42
2:L:102:LEU:HD23	2:L:102:LEU:HA	1.89	0.42
3:M:53:GLY:O	3:M:57:VAL:HG23	2.19	0.42
9:M:406:SPO:H243	5:M:409:BCL:HBB2	2.01	0.42
2:L:128:TYR:O	2:L:132:VAL:HG22	2.19	0.42
2:L:181:PHE:CD2	4:L:301:BPH:HBB1	2.55	0.42
1:H:112:ALA:HA	1:H:235:GLY:O	2.20	0.41
1:H:130:LYS:HZ2	1:H:173:GLU:HG3	1.85	0.41
4:L:301:BPH:HHC	5:M:401:BCL:H2	2.01	0.41
1:H:36:MET:HE2	1:H:58:LEU:HD23	2.02	0.41
1:H:118:ARG:NH1	1:H:118:ARG:CG	2.72	0.41
3:M:250:LEU:HD23	3:M:250:LEU:HA	1.94	0.41
3:M:265:ILE:O	3:M:265:ILE:HG13	2.21	0.41
1:H:191:LEU:HA	1:H:191:LEU:HD23	1.86	0.41
2:L:205:GLU:H	2:L:205:GLU:HG3	1.73	0.41
1:H:32:GLN:HG2	1:H:56:PHE:CE2	2.55	0.41
4:L:301:BPH:HHC	4:L:301:BPH:HBB3	2.03	0.40
7:M:403:LDA:H21	7:M:403:LDA:HM11	1.73	0.40
1:H:213:PHE:O	1:H:216:ILE:HG13	2.21	0.40
1:H:226:THR:O	1:H:230:GLU:HG3	2.21	0.40
3:M:196:LEU:O	3:M:198:TYR:N	2.54	0.40
3:M:280:GLY:O	5:M:401:BCL:HED3	2.21	0.40
1:H:108:GLY:O	1:H:113:SER:HA	2.21	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%)	232 (98%)	5 (2%)	1 (0%)	34	64
2	L	281/281 (100%)	271 (96%)	10 (4%)	0	100	100
3	M	296/301 (98%)	283 (96%)	11 (4%)	2 (1%)	22	52
All	All	815/822 (99%)	786 (96%)	26 (3%)	3 (0%)	34	64

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	M	301	HIS
1	H	246	PRO
3	M	179	ILE

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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%)	193 (99%)	2 (1%)	76	89
2	L	222/220 (101%)	220 (99%)	2 (1%)	78	90
3	M	235/235 (100%)	233 (99%)	2 (1%)	78	90
All	All	652/650 (100%)	646 (99%)	6 (1%)	78	90

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	67	PRO
1	H	118	ARG
2	L	247	CYS
2	L	272	TRP
3	M	132	ARG
3	M	182	HIS

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

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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	A1ADZ	M	210	3	12,13,14	1.42	1 (8%)	13,16,18	0.60	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	A1ADZ	M	210	3	-	3/7/8/10	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	A1ADZ	O1-C3	4.83	1.39	1.19



There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	M	210	A1ADZ	C2-C5-C6-C7
3	M	210	A1ADZ	C2-C5-C6-C8
3	M	210	A1ADZ	C3-C2-C5-C6

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
5	BCL	L	302	-	64,74,74	1.50	7 (10%)	78,115,115	1.60	14 (17%)
7	LDA	M	402	-	12,15,15	1.96	1 (8%)	14,17,17	0.57	0
9	SPO	M	406	-	40,41,41	0.45	0	47,50,50	0.48	0
4	BPH	L	301	-	41,60,70	0.97	1 (2%)	40,89,101	1.53	7 (17%)
10	CDL	M	407	-	68,68,99	1.17	7 (10%)	74,80,111	1.01	5 (6%)
5	BCL	L	303	-	64,74,74	1.48	9 (14%)	78,115,115	1.52	14 (17%)
7	LDA	M	404	-	12,15,15	2.01	1 (8%)	14,17,17	0.36	0
5	BCL	M	401	-	64,74,74	1.52	8 (12%)	78,115,115	1.55	11 (14%)
5	BCL	M	409	-	49,59,74	1.79	10 (20%)	60,97,115	1.76	12 (20%)
4	BPH	M	408	-	51,70,70	0.94	2 (3%)	52,101,101	1.38	8 (15%)
7	LDA	M	403	-	12,15,15	1.96	1 (8%)	14,17,17	0.64	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
5	BCL	L	302	-	-	2/37/137/137	-
7	LDA	M	402	-	-	8/13/13/13	-
9	SPO	M	406	-	-	4/47/47/47	-
4	BPH	L	301	-	-	4/25/93/105	0/5/6/6
10	CDL	M	407	-	1/1/9/9	34/79/79/110	-
5	BCL	L	303	-	-	4/37/137/137	-
7	LDA	M	404	-	-	7/13/13/13	-
5	BCL	M	401	-	-	7/37/137/137	-
5	BCL	M	409	-	-	2/19/119/137	-
4	BPH	M	408	-	-	4/37/105/105	0/5/6/6
7	LDA	M	403	-	-	7/13/13/13	-

All (47) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	M	404	LDA	O1-N1	-6.87	1.26	1.42
5	L	303	BCL	C1B-NB	6.79	1.41	1.35
7	M	402	LDA	O1-N1	-6.69	1.26	1.42
7	M	403	LDA	O1-N1	-6.66	1.26	1.42
5	M	401	BCL	C1B-NB	6.20	1.40	1.35
5	M	409	BCL	C1B-NB	5.64	1.40	1.35
5	L	302	BCL	C1B-NB	5.54	1.40	1.35
5	M	401	BCL	MG-NA	5.34	2.19	2.06
5	L	302	BCL	MG-NA	4.83	2.17	2.06
5	M	409	BCL	MG-NA	4.77	2.17	2.06
5	L	303	BCL	MG-NA	4.73	2.17	2.06
5	M	409	BCL	MG-NC	4.15	2.16	2.06
4	M	408	BPH	CBD-CGD	-3.96	1.47	1.52
5	M	409	BCL	OBD-CAD	3.57	1.28	1.22
5	L	303	BCL	MG-NC	3.55	2.14	2.06
5	M	409	BCL	O2A-CGA	3.46	1.43	1.33
5	M	409	BCL	C4B-NB	3.31	1.38	1.35
5	L	302	BCL	OBD-CAD	3.23	1.28	1.22
5	L	302	BCL	MG-NC	3.19	2.13	2.06
10	M	407	CDL	PA1-OA4	-3.18	1.40	1.55
5	L	302	BCL	C4B-NB	3.13	1.38	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	M	407	CDL	PA1-OA5	3.08	1.71	1.59
5	M	409	BCL	C1D-ND	3.02	1.41	1.37
5	M	401	BCL	C4B-NB	3.01	1.37	1.35
10	M	407	CDL	PB2-OB5	3.00	1.71	1.59
5	M	409	BCL	CHD-C1D	2.97	1.44	1.38
5	M	401	BCL	C1D-ND	2.87	1.41	1.37
5	L	302	BCL	CAC-C3C	2.86	1.59	1.54
5	M	401	BCL	C3B-C2B	2.85	1.44	1.39
10	M	407	CDL	PB2-OB4	-2.84	1.42	1.55
5	M	401	BCL	C1D-C2D	-2.77	1.39	1.45
10	M	407	CDL	PB2-OB3	-2.77	1.41	1.50
5	M	401	BCL	MG-NC	2.74	2.12	2.06
5	L	302	BCL	CHD-C1D	2.56	1.43	1.38
5	L	303	BCL	C4B-NB	2.37	1.37	1.35
5	L	303	BCL	C5-C3	2.34	1.56	1.51
4	L	301	BPH	CHA-CBD	2.33	1.55	1.52
10	M	407	CDL	CA3-CA4	2.26	1.57	1.50
5	M	401	BCL	OBD-CAD	2.21	1.26	1.22
5	L	303	BCL	CHD-C1D	2.20	1.42	1.38
5	L	303	BCL	C1D-C2D	-2.14	1.41	1.45
4	M	408	BPH	C1C-C2C	-2.13	1.47	1.51
10	M	407	CDL	OB6-CB5	2.12	1.40	1.34
5	M	409	BCL	C5-C3	2.11	1.56	1.50
5	L	303	BCL	C3D-C4D	-2.08	1.39	1.44
5	M	409	BCL	C1-C2	2.07	1.55	1.49
5	L	303	BCL	C1D-ND	2.03	1.40	1.37

All (71) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	302	BCL	CHD-C1D-ND	-5.66	119.25	124.45
5	M	409	BCL	CHD-C1D-ND	-5.42	119.47	124.45
5	M	401	BCL	C4D-CHA-C1A	5.15	127.52	121.25
5	M	401	BCL	CHD-C1D-ND	-5.06	119.80	124.45
5	M	409	BCL	C4D-CHA-C1A	4.86	127.16	121.25
5	L	303	BCL	CHD-C1D-ND	-4.52	120.30	124.45
5	L	302	BCL	C1D-ND-C4D	-4.51	103.13	106.33
5	L	303	BCL	C4D-CHA-C1A	4.23	126.40	121.25
4	M	408	BPH	C11-C10-C8	-4.21	102.30	115.92
5	M	401	BCL	C1D-ND-C4D	-4.21	103.34	106.33
5	M	409	BCL	C1D-ND-C4D	-4.21	103.34	106.33
5	L	303	BCL	C1D-ND-C4D	-3.85	103.60	106.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	302	BCL	C4D-CHA-C1A	3.80	125.87	121.25
4	L	301	BPH	C1-C2-C3	-3.76	119.54	126.04
5	M	409	BCL	CMB-C2B-C1B	-3.68	122.81	128.46
4	L	301	BPH	O2D-CGD-CBD	3.64	115.60	111.00
4	M	408	BPH	C4C-C3C-C2C	-3.55	99.46	102.84
5	L	303	BCL	C11-C12-C13	-3.46	104.73	115.92
5	L	302	BCL	C2A-C1A-CHA	3.34	129.71	123.86
4	L	301	BPH	OBD-CAD-CBD	-3.33	120.94	125.82
5	M	409	BCL	C1-O2A-CGA	3.32	125.16	116.44
5	M	401	BCL	C4A-NA-C1A	3.30	108.19	106.71
5	M	401	BCL	CMB-C2B-C1B	-3.27	123.43	128.46
5	L	303	BCL	C4B-C3B-CAB	-3.13	121.08	127.13
5	M	409	BCL	C2A-C1A-CHA	3.11	129.31	123.86
4	M	408	BPH	OBD-CAD-CBD	-3.07	121.32	125.82
5	M	401	BCL	CHA-C1A-NA	-3.05	119.42	126.40
5	L	302	BCL	C16-C15-C13	3.00	125.62	115.92
5	M	409	BCL	CHA-C1A-NA	-2.97	119.59	126.40
5	L	302	BCL	CHA-C1A-NA	-2.97	119.60	126.40
10	M	407	CDL	OA4-PA1-OA3	2.96	126.85	112.24
5	L	303	BCL	C17-C16-C15	-2.93	99.77	113.24
5	L	302	BCL	CMB-C2B-C1B	-2.92	123.97	128.46
5	L	303	BCL	CHA-C1A-NA	-2.85	119.87	126.40
5	M	409	BCL	C1-C2-C3	-2.84	122.15	126.75
5	L	303	BCL	C2A-C1A-CHA	2.82	128.79	123.86
5	L	303	BCL	C16-C15-C13	2.80	124.97	115.92
5	L	302	BCL	C2D-C1D-ND	2.79	112.16	110.10
5	M	401	BCL	C2D-C1D-ND	2.77	112.14	110.10
5	L	302	BCL	OBB-CAB-CBB	-2.71	114.07	120.17
5	L	303	BCL	CMB-C2B-C1B	-2.65	124.39	128.46
5	M	401	BCL	C1-C2-C3	-2.63	121.49	126.04
4	M	408	BPH	OBB-CAB-CBB	-2.62	114.28	120.17
5	L	302	BCL	C4A-NA-C1A	2.61	107.88	106.71
5	M	401	BCL	C2A-C1A-CHA	2.51	128.25	123.86
10	M	407	CDL	OB8-CB7-OB9	-2.50	117.29	123.59
5	M	409	BCL	CMB-C2B-C3B	2.47	129.30	124.68
5	M	401	BCL	CMB-C2B-C3B	2.46	129.28	124.68
5	L	302	BCL	O2D-CGD-CBD	2.45	115.62	111.27
10	M	407	CDL	OB4-PB2-OB3	2.44	124.33	112.24
5	M	401	BCL	OBB-CAB-CBB	-2.42	114.72	120.17
5	M	409	BCL	C2D-C1D-ND	2.41	111.88	110.10
4	L	301	BPH	CMD-C2D-C3D	2.41	129.19	124.68
5	L	303	BCL	C11-C10-C8	-2.40	108.16	115.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	M	409	BCL	OBB-CAB-CBB	-2.40	114.78	120.17
4	L	301	BPH	O2D-CGD-O1D	-2.36	119.23	123.84
4	M	408	BPH	CMB-C2B-C3B	2.33	129.04	124.68
5	L	303	BCL	CMB-C2B-C3B	2.26	128.91	124.68
5	L	302	BCL	CAC-C3C-C4C	2.24	117.56	112.58
10	M	407	CDL	OB6-CB5-OB7	-2.22	118.33	123.70
4	L	301	BPH	CMA-C3A-C4A	-2.20	109.55	114.38
10	M	407	CDL	CA4-OA6-CA5	2.19	123.19	117.79
4	M	408	BPH	C1C-C2C-C3C	-2.16	100.78	102.84
5	L	302	BCL	O2D-CGD-O1D	-2.16	119.61	123.84
4	M	408	BPH	C16-C15-C13	-2.13	109.04	115.92
5	L	302	BCL	CHD-C4C-NC	-2.09	122.75	125.08
4	M	408	BPH	CMD-C2D-C3D	2.08	128.58	124.68
4	L	301	BPH	O2A-C1-C2	-2.06	103.22	108.64
5	M	409	BCL	C4A-NA-C1A	2.06	107.63	106.71
5	L	303	BCL	O2D-CGD-CBD	2.04	114.90	111.27
5	L	303	BCL	OBB-CAB-CBB	-2.01	115.64	120.17

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
10	M	407	CDL	CA4

All (83) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	M	402	LDA	C2-C1-N1-O1
7	M	402	LDA	C2-C1-N1-CM1
7	M	402	LDA	C2-C1-N1-CM2
7	M	403	LDA	C2-C1-N1-O1
7	M	403	LDA	C2-C1-N1-CM1
10	M	407	CDL	CA2-OA2-PA1-OA3
10	M	407	CDL	CA2-OA2-PA1-OA4
10	M	407	CDL	CA3-OA5-PA1-OA4
10	M	407	CDL	CA6-CA4-OA6-CA5
10	M	407	CDL	C11-CA5-OA6-CA4
10	M	407	CDL	OA7-CA5-OA6-CA4
10	M	407	CDL	C31-CA7-OA8-CA6
7	M	403	LDA	C1-C2-C3-C4
10	M	407	CDL	OA9-CA7-OA8-CA6
10	M	407	CDL	CB5-C51-C52-C53
5	M	401	BCL	C14-C13-C15-C16

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Mol	Chain	Res	Type	Atoms
10	M	407	CDL	CA5-C11-C12-C13
10	M	407	CDL	CB7-C71-C72-C73
5	M	401	BCL	C13-C15-C16-C17
10	M	407	CDL	CA2-OA2-PA1-OA5
7	M	403	LDA	C6-C7-C8-C9
10	M	407	CDL	OB6-CB4-CB6-OB8
7	M	404	LDA	C6-C7-C8-C9
10	M	407	CDL	C33-C34-C35-C36
7	M	404	LDA	C2-C3-C4-C5
7	M	402	LDA	C3-C4-C5-C6
7	M	402	LDA	C7-C8-C9-C10
4	M	408	BPH	O2A-C1-C2-C3
4	L	301	BPH	C4-C3-C5-C6
4	L	301	BPH	C2-C3-C5-C6
10	M	407	CDL	C34-C35-C36-C37
7	M	402	LDA	C4-C5-C6-C7
7	M	403	LDA	C7-C8-C9-C10
7	M	404	LDA	C5-C6-C7-C8
5	M	401	BCL	C12-C13-C15-C16
7	M	404	LDA	C9-C10-C11-C12
10	M	407	CDL	CA3-OA5-PA1-OA2
7	M	404	LDA	C4-C5-C6-C7
10	M	407	CDL	CB3-CB4-CB6-OB8
4	M	408	BPH	C15-C16-C17-C18
9	M	406	SPO	C34-C33-C35-C36
9	M	406	SPO	C32-C33-C35-C36
10	M	407	CDL	CA7-C31-C32-C33
7	M	404	LDA	C1-C2-C3-C4
7	M	402	LDA	C6-C7-C8-C9
10	M	407	CDL	C17-C18-C19-C20
10	M	407	CDL	C39-C40-C41-C42
7	M	402	LDA	C1-C2-C3-C4
5	M	401	BCL	C15-C16-C17-C18
7	M	403	LDA	C5-C6-C7-C8
5	L	302	BCL	CAD-CBD-CGD-O2D
5	L	303	BCL	CAD-CBD-CGD-O2D
5	M	409	BCL	CAD-CBD-CGD-O2D
7	M	403	LDA	C2-C1-N1-CM2
9	M	406	SPO	C5-C6-C7-C8
10	M	407	CDL	C72-C73-C74-C75
10	M	407	CDL	CA3-OA5-PA1-OA3
10	M	407	CDL	OB5-CB3-CB4-OB6

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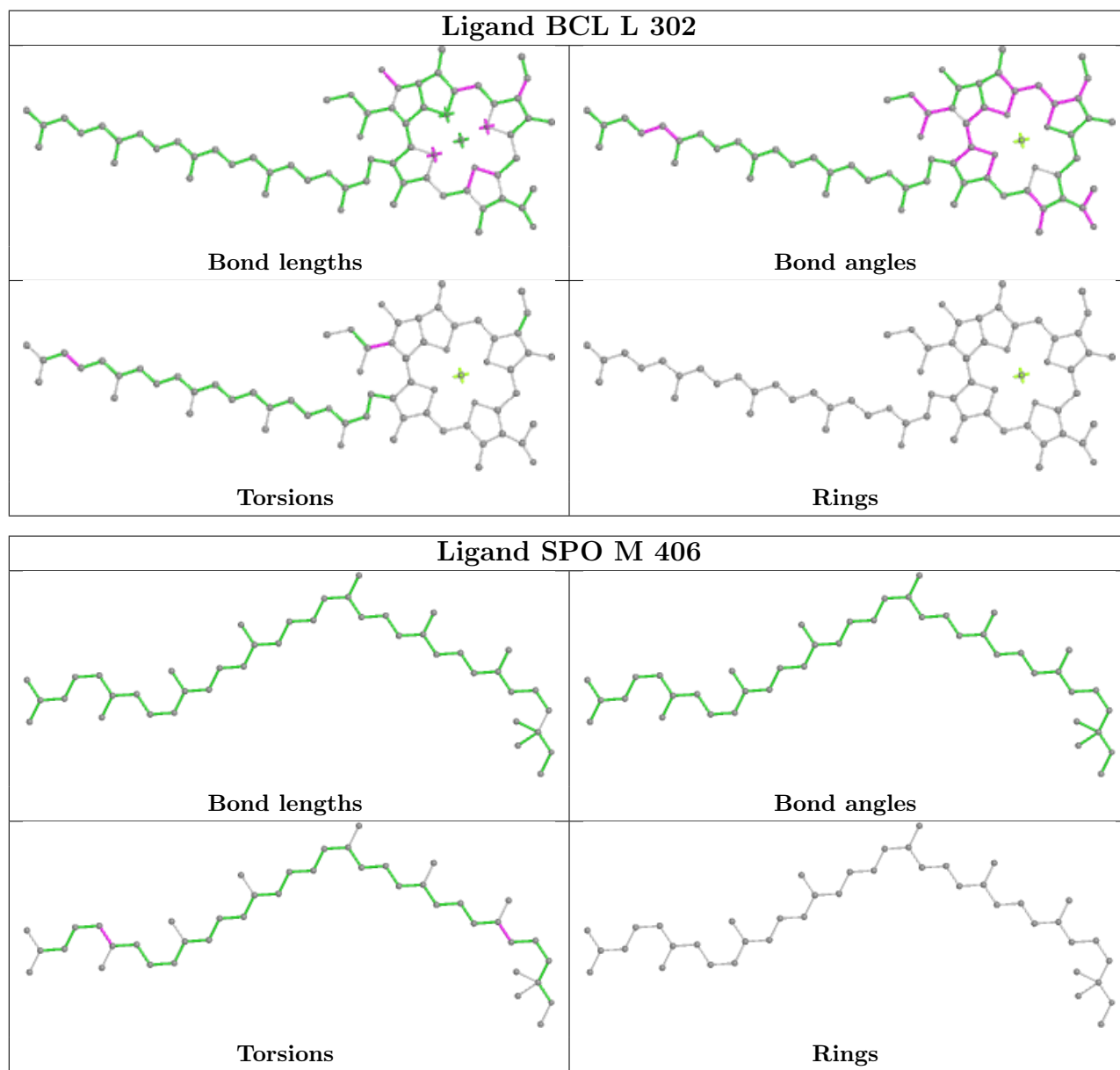
Mol	Chain	Res	Type	Atoms
4	M	408	BPH	C8-C10-C11-C12
10	M	407	CDL	C12-C13-C14-C15
7	M	404	LDA	C7-C8-C9-C10
10	M	407	CDL	C14-C15-C16-C17
10	M	407	CDL	C71-C72-C73-C74
5	L	303	BCL	C2A-CAA-CBA-CGA
5	L	302	BCL	C15-C16-C17-C18
10	M	407	CDL	CB3-OB5-PB2-OB2
5	L	303	BCL	C16-C17-C18-C19
5	L	303	BCL	C16-C17-C18-C20
10	M	407	CDL	C1-CB2-OB2-PB2
4	L	301	BPH	C5-C6-C7-C8
5	M	409	BCL	C2-C1-O2A-CGA
10	M	407	CDL	C15-C16-C17-C18
10	M	407	CDL	OB5-CB3-CB4-CB6
4	M	408	BPH	CAD-CBD-CGD-O2D
9	M	406	SPO	C5-C6-C7-C9
5	M	401	BCL	CHA-CBD-CGD-O1D
10	M	407	CDL	C72-C71-CB7-OB8
10	M	407	CDL	C51-C52-C53-C54
4	L	301	BPH	CHA-CBD-CGD-O1D
10	M	407	CDL	C76-C77-C78-C79
10	M	407	CDL	CB2-OB2-PB2-OB3
5	M	401	BCL	CAD-CBD-CGD-O1D
5	M	401	BCL	CAA-CBA-CGA-O2A

There are no ring outliers.

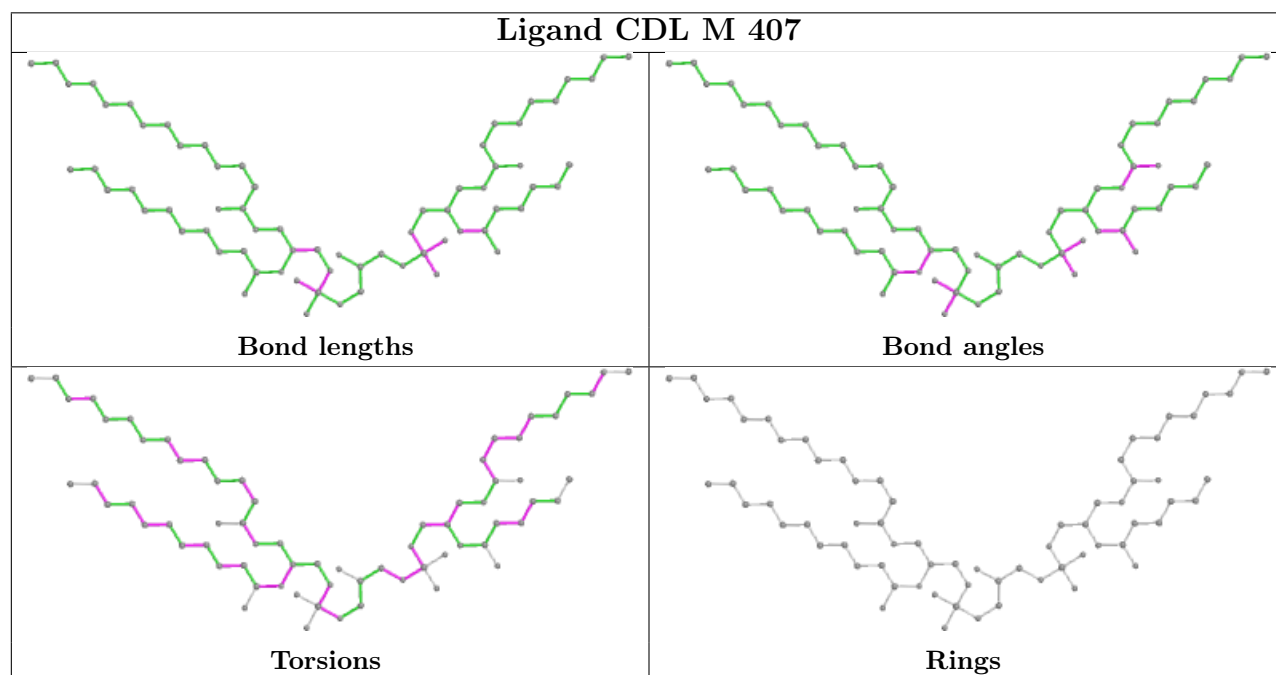
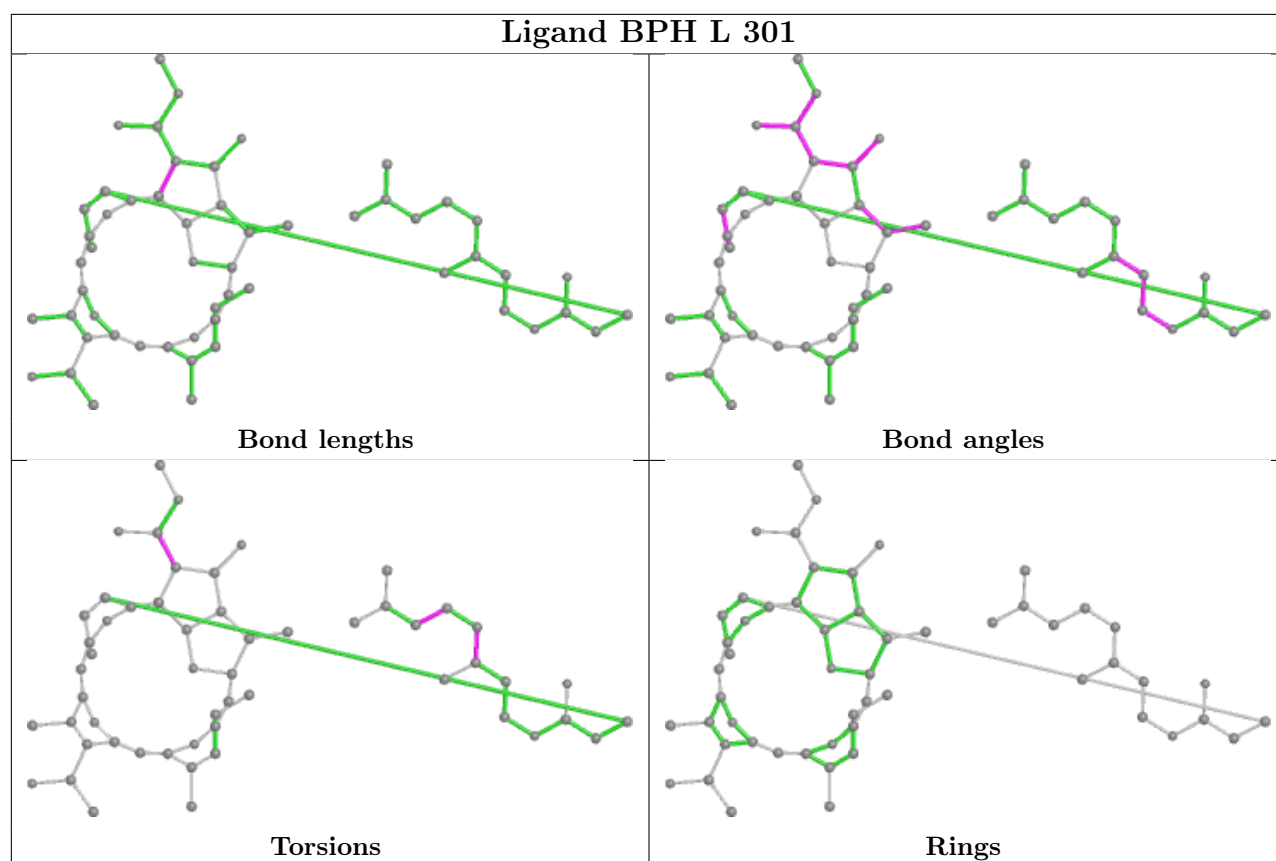
11 monomers are involved in 32 short contacts:

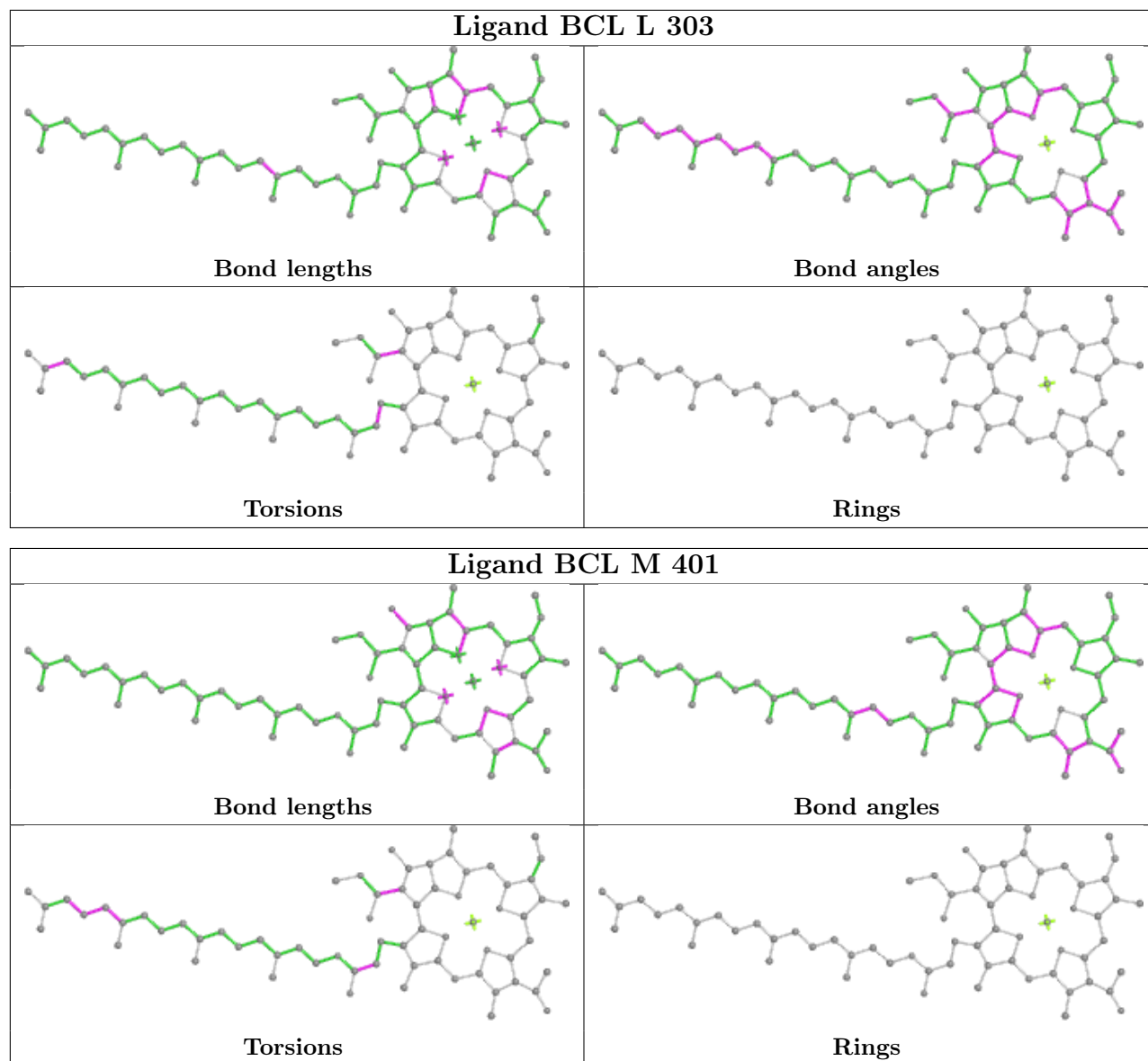
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	L	302	BCL	3	0
7	M	402	LDA	1	0
9	M	406	SPO	1	0
4	L	301	BPH	8	0
10	M	407	CDL	2	0
5	L	303	BCL	3	0
7	M	404	LDA	1	0
5	M	401	BCL	10	0
5	M	409	BCL	5	0
4	M	408	BPH	3	0
7	M	403	LDA	1	0

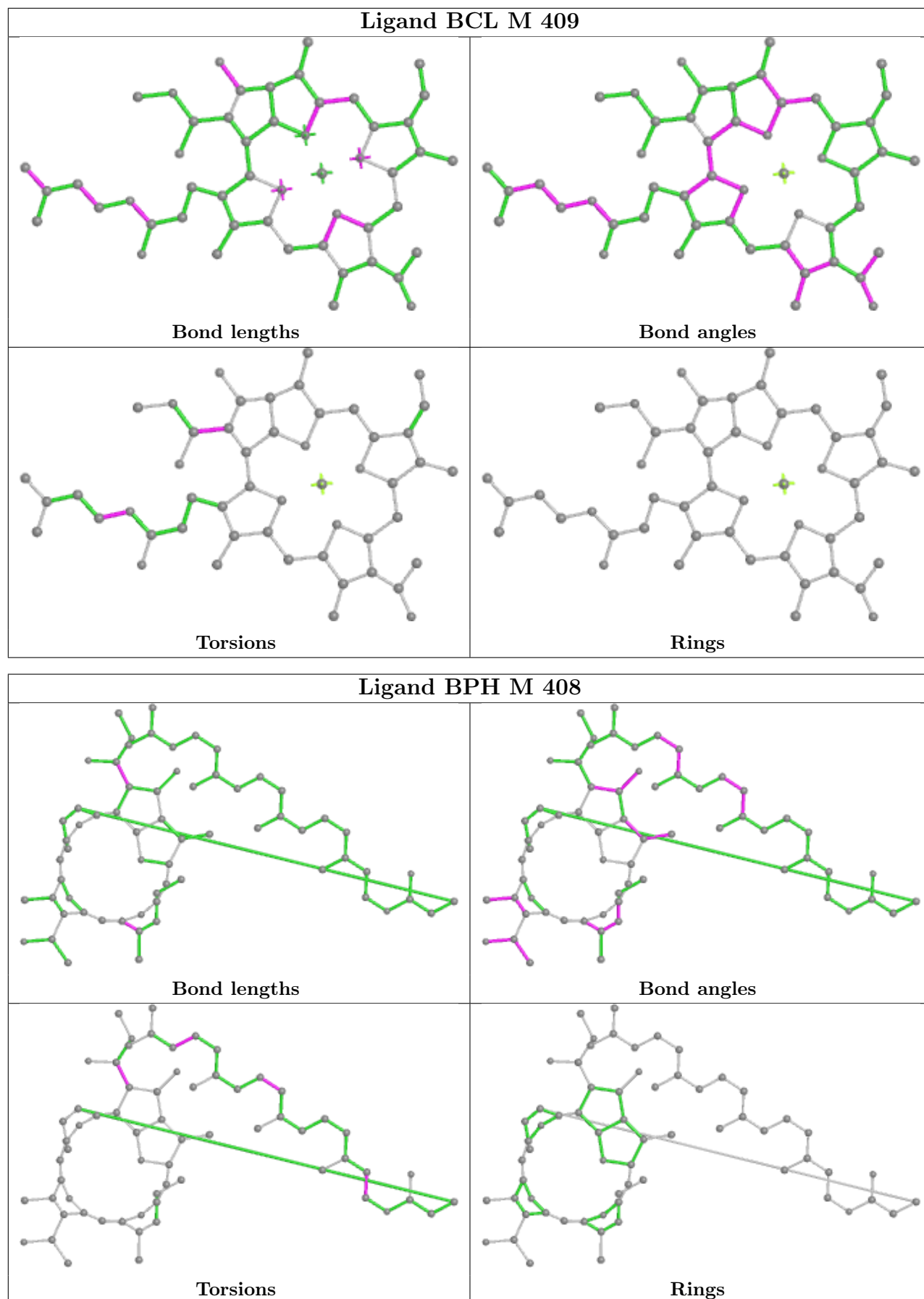
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.











## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	H	240/240 (100%)	-0.38	4 (1%) 70 46	49, 62, 87, 146	0
2	L	281/281 (100%)	-0.65	1 (0%) 92 82	45, 57, 91, 123	0
3	M	300/301 (99%)	-0.65	0 100 100	44, 62, 90, 128	0
All	All	821/822 (99%)	-0.57	5 (0%) 89 76	44, 60, 90, 146	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	L	281	GLY	3.6
1	H	102	GLY	2.7
1	H	246	PRO	2.3
1	H	250	SER	2.3
1	H	249	LYS	2.2

### 6.2 Non-standard residues in protein, DNA, RNA chains [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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	A1ADZ	M	210	13/14	0.90	0.23	46,49,67,71	0

### 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands

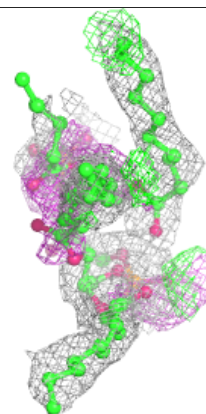
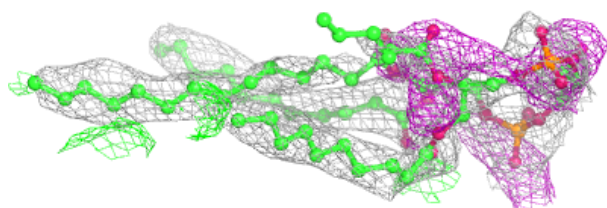
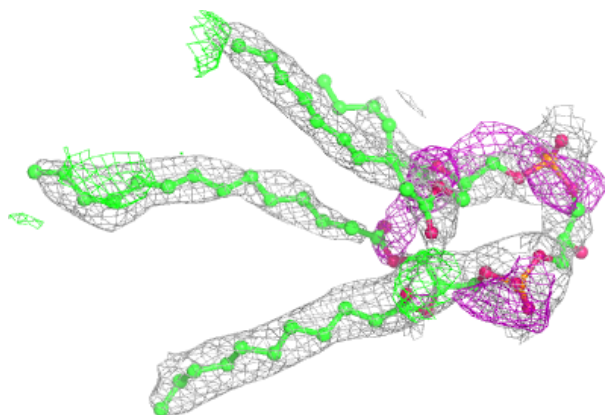
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
7	LDA	M	404	16/16	0.75	0.37	78,90,105,110	0
10	CDL	M	407	69/100	0.83	0.44	69,93,115,123	0
7	LDA	M	403	16/16	0.85	0.36	82,93,106,108	0
6	CL	L	304	1/1	0.88	0.16	89,89,89,89	0
7	LDA	M	402	16/16	0.91	0.23	71,78,90,97	0
9	SPO	M	406	42/42	0.96	0.26	55,70,86,93	0
5	BCL	L	303	66/66	0.97	0.19	43,50,58,69	0
5	BCL	M	401	66/66	0.97	0.21	44,50,70,85	0
4	BPH	L	301	55/65	0.97	0.17	45,54,78,88	0
5	BCL	L	302	66/66	0.97	0.17	44,52,67,75	0
4	BPH	M	408	65/65	0.98	0.16	45,49,64,66	0
5	BCL	M	409	51/66	0.98	0.16	46,52,63,70	0
8	FE	M	405	1/1	0.99	0.14	44,44,44,44	0

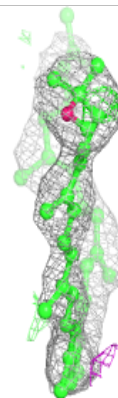
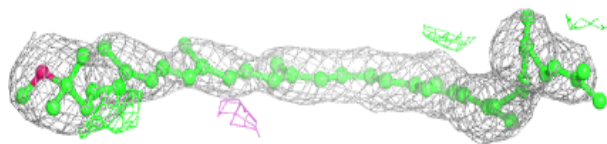
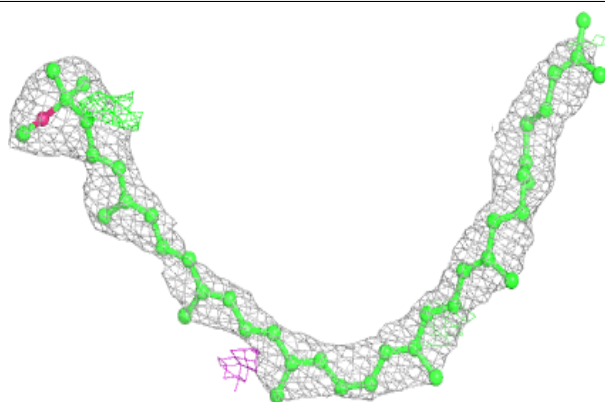
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

**Electron density around CDL M 407:**

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

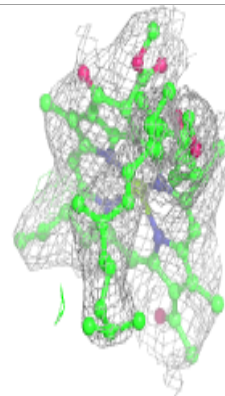
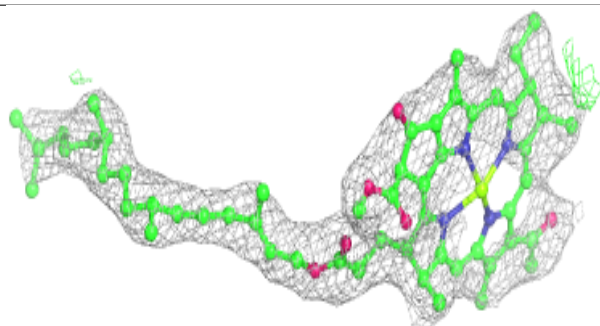
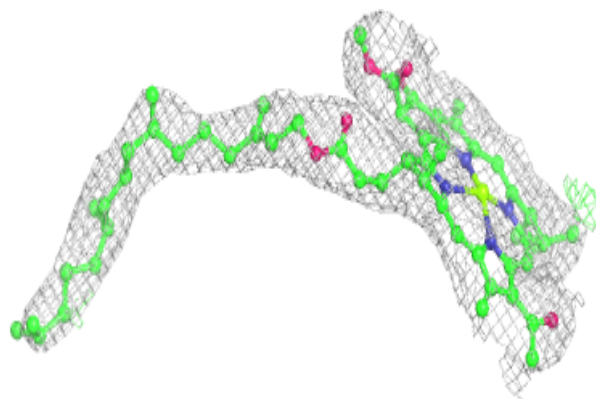
**Electron density around SPO M 406:**

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

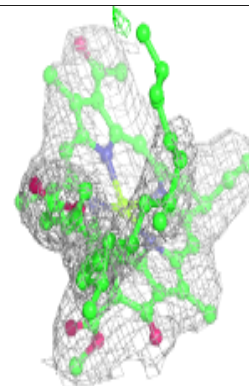
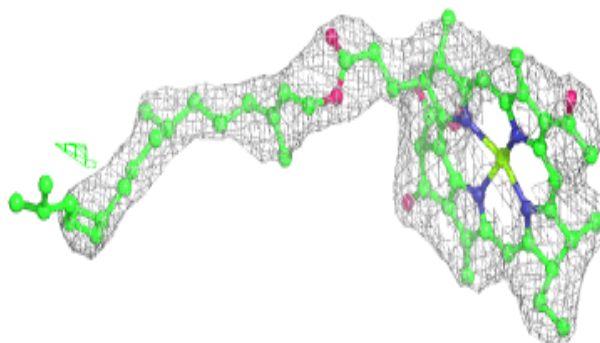
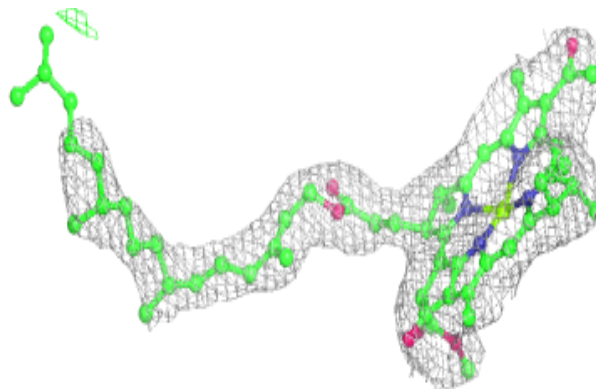


**Electron density around BCL L 303:**

$2mF_o-DF_c$  (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:**

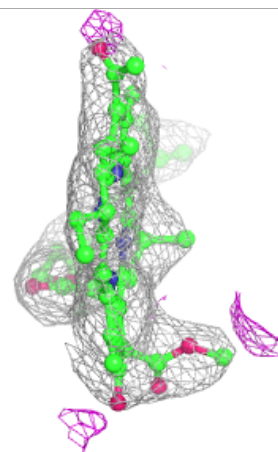
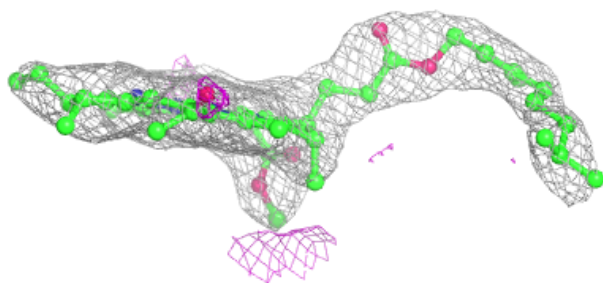
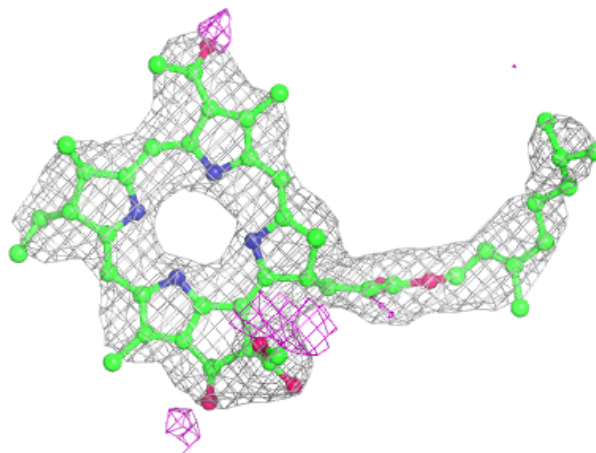
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





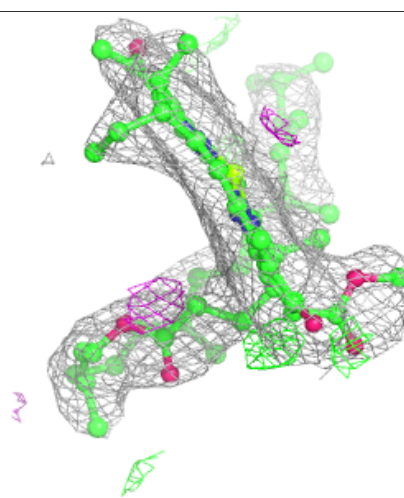
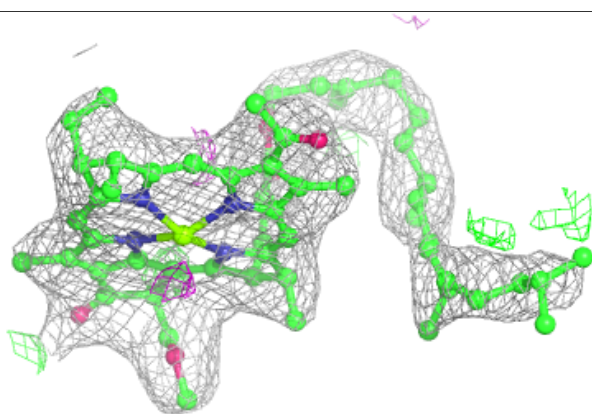
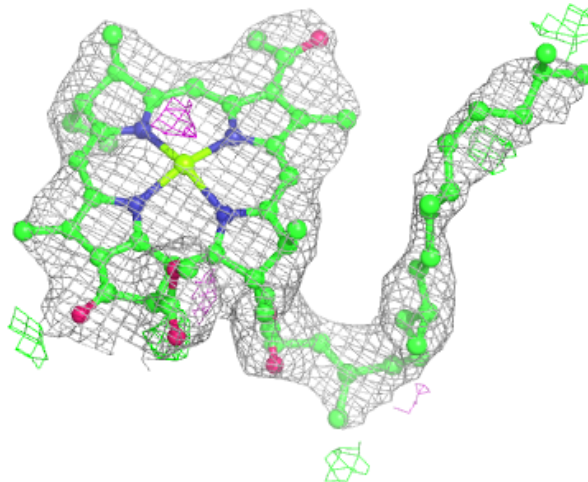
**Electron density around BPH L 301:**

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



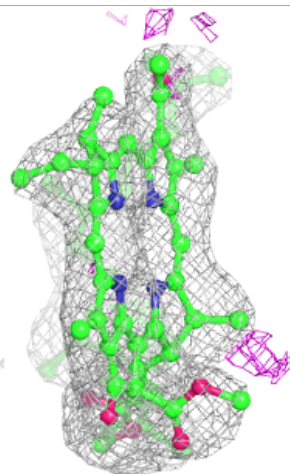
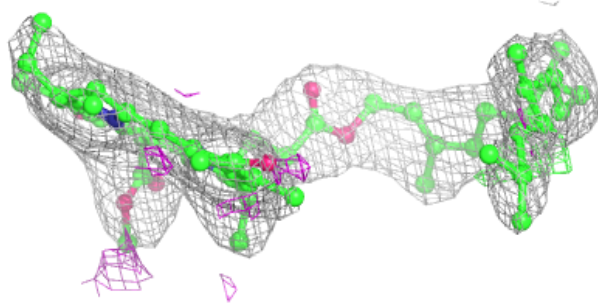
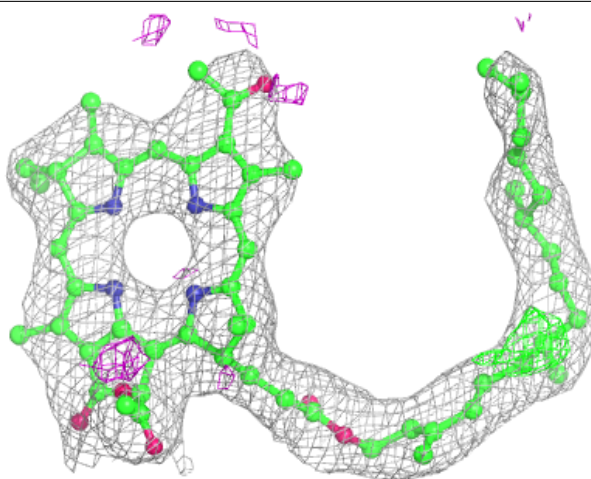
**Electron density around BCL L 302:**

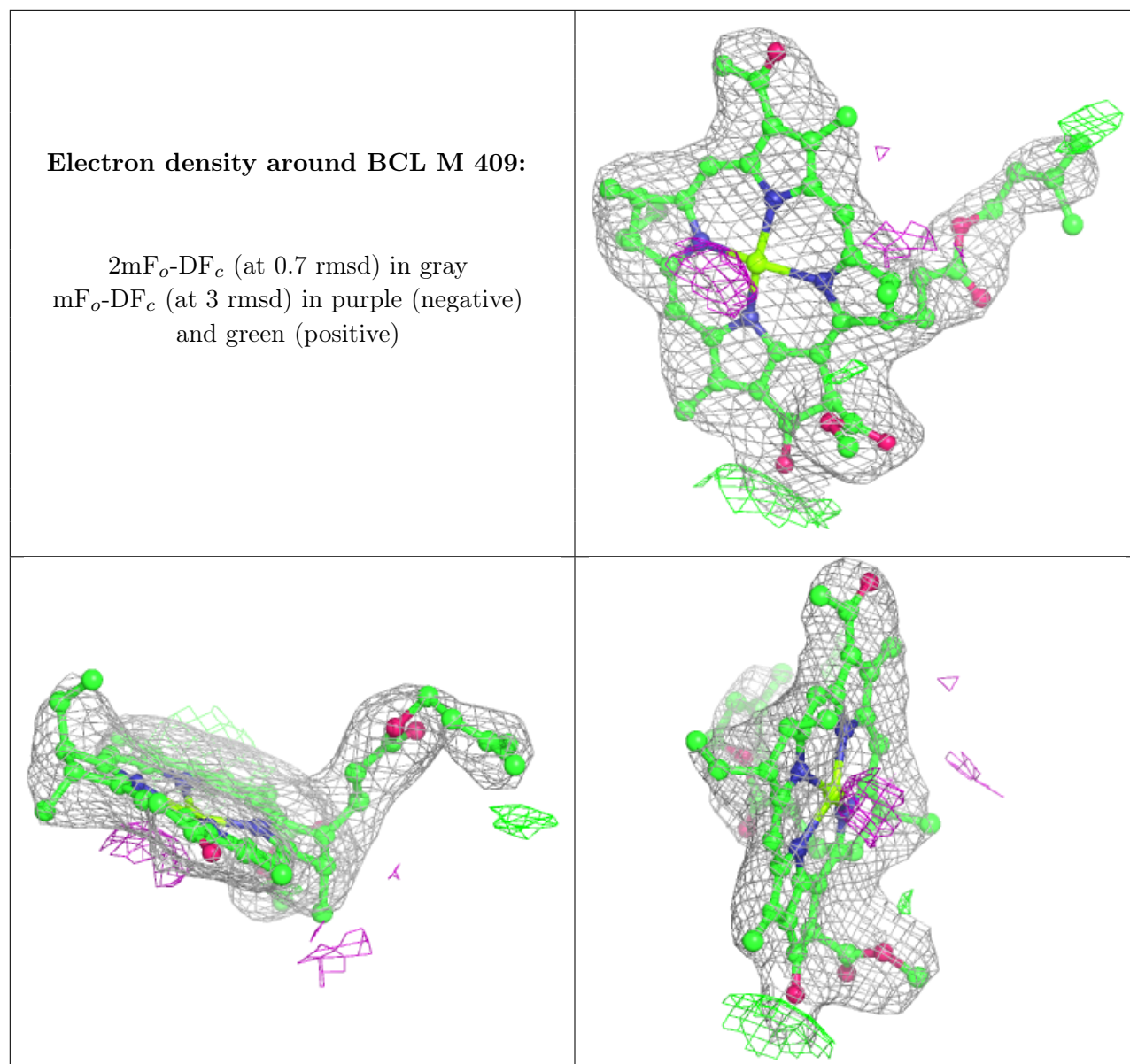
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around BPH 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)





## 6.5 Other polymers [i](#)

There are no such residues in this entry.