



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 16, 2023 – 12:22 PM EDT

PDB ID : 1ZRT
Title : Rhodobacter capsulatus cytochrome bc1 complex with stigmatellin bound
Authors : Berry, E.A.; Huang, L.S.; Saechao, L.K.; Pon, N.G.; Valkova-Valchanov, M.; Daldal, F.
Deposited on : 2005-05-22
Resolution : 3.51 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

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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)
Xtrriage (Phenix) : 1.13
EDS : 2.35
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) : 2.35

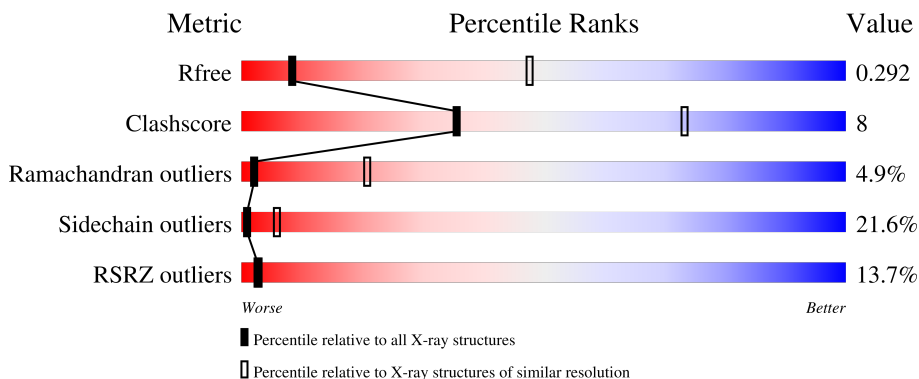
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.51 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	1161 (3.60-3.44)
Clashscore	141614	1244 (3.60-3.44)
Ramachandran outliers	138981	1206 (3.60-3.44)
Sidechain outliers	138945	1207 (3.60-3.44)
RSRZ outliers	127900	1080 (3.60-3.44)

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 $\leq 5\%$. 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	C	437	 3% 68% 24% 7%
1	P	437	 5% 67% 24% 6%
2	D	258	 33% 59% 32% 5%
2	Q	258	 24% 59% 31% 6%
3	E	191	 12% 58% 32% 6%

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Mol	Chain	Length	Quality of chain
3	R	191	

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
6	UNL	P	504	-	-	-	X
9	PG6	Q	502	-	-	-	X

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 13919 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 Cytochrome b.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	C	431	3472	2345	543	570	14	0	1	0
1	P	431	3468	2342	542	570	14	0	1	0

- Molecule 2 is a protein called Cytochrome c1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	D	248	1908	1213	319	359	17	0	0	0
2	Q	248	1904	1210	318	359	17	0	0	0

- Molecule 3 is a protein called Ubiquinol-cytochrome c reductase iron-sulfur subunit.

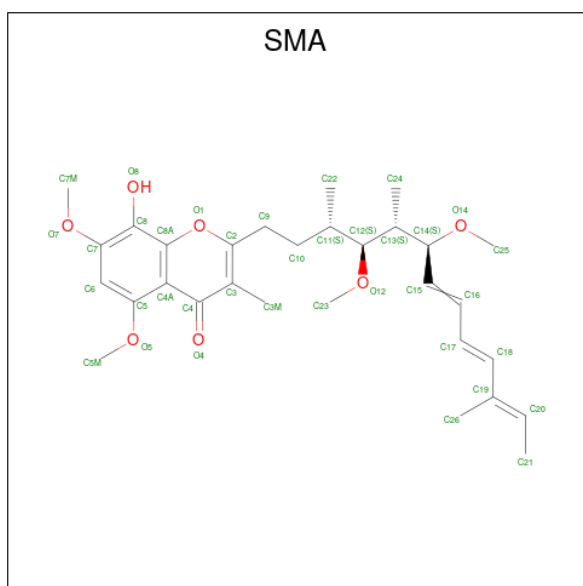
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	183	1372	859	248	257	8	0	0	0
3	R	183	1376	861	248	259	8	0	0	0

- Molecule 4 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: C₃₄H₃₂FeN₄O₄).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Fe	N			O
4	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	P	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	P	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 5 is STIGMATELLIN A (three-letter code: SMA) (formula: $C_{30}H_{42}O_7$) (labeled as "Ligand of Interest" by depositor).

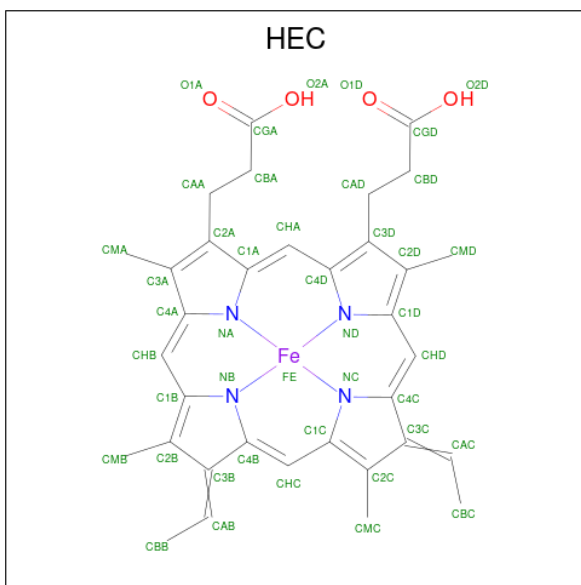


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	C	O	0	0
			37	30	7		
5	P	1	Total	C	O	0	0
			37	30	7		

- Molecule 6 is UNKNOWN LIGAND (three-letter code: UNL) (formula:).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	C	2	Total	C	O	0	0
			25	18	7		
6	P	2	Total	C	O	0	0
			36	27	9		

- Molecule 7 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



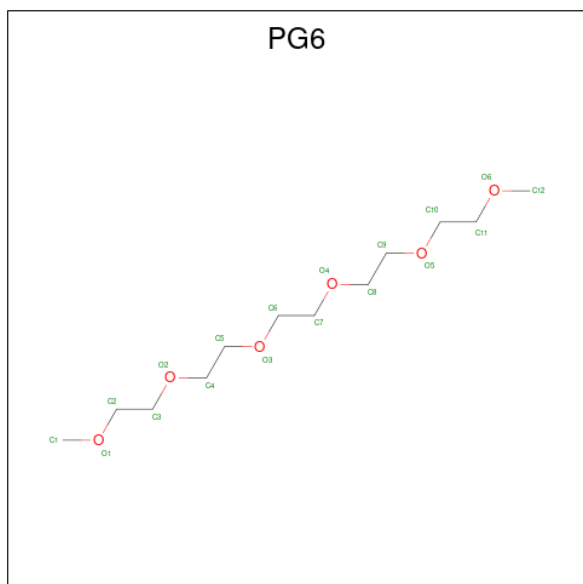
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
7	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
7	Q	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 8 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	E	1	Total Fe S 4 2 2	0	0
8	R	1	Total Fe S 4 2 2	0	0

- Molecule 9 is 1-(2-METHOXY-ETHOXY)-2-{2-[2-(2-METHOXY-ETHOXY)-ETHOXY]}-ETHANE (three-letter code: PG6) (formula: C₁₂H₂₆O₆).

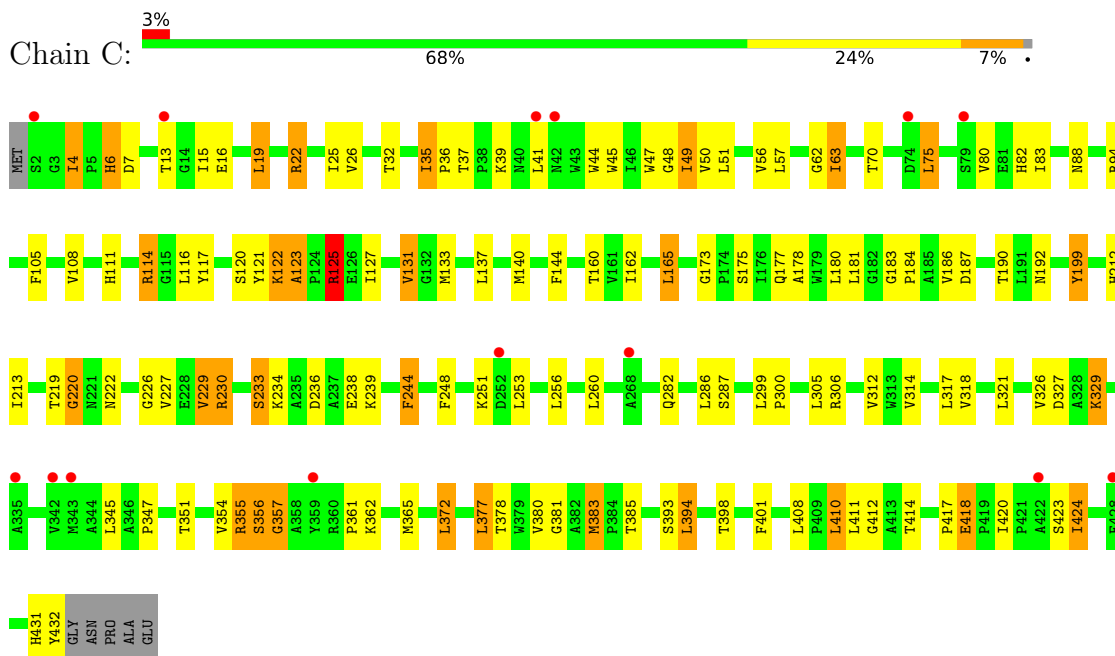


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	Q	1	Total C O 18 12 6	0	0

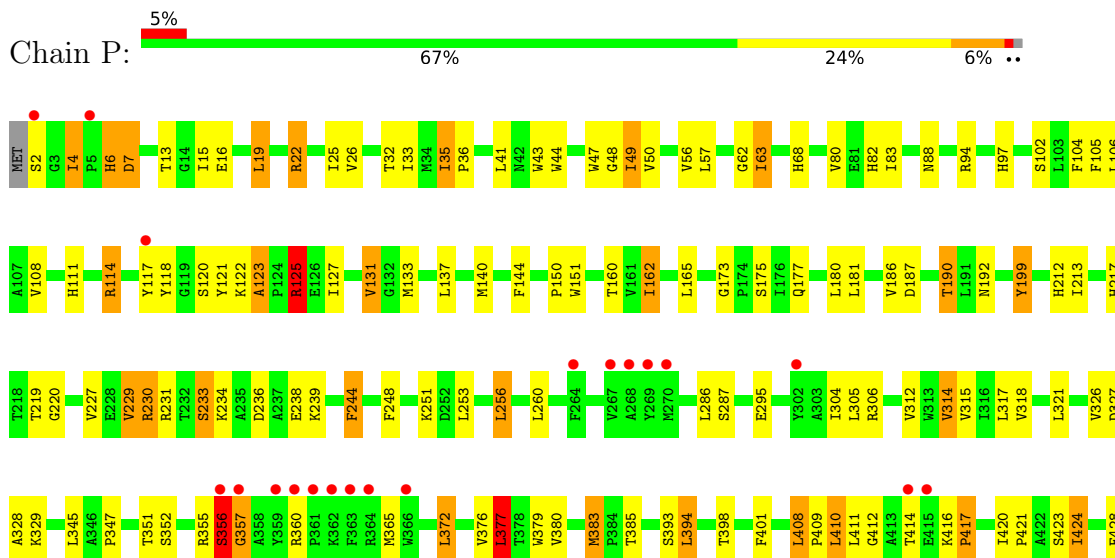
3 Residue-property plots [i](#)

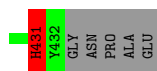
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

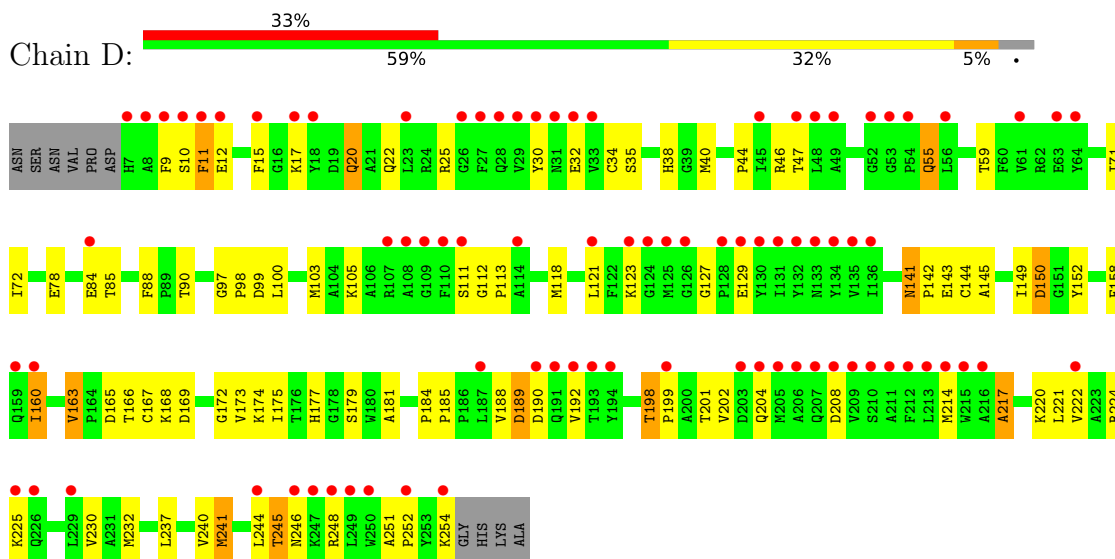


- Molecule 1: Cytochrome b

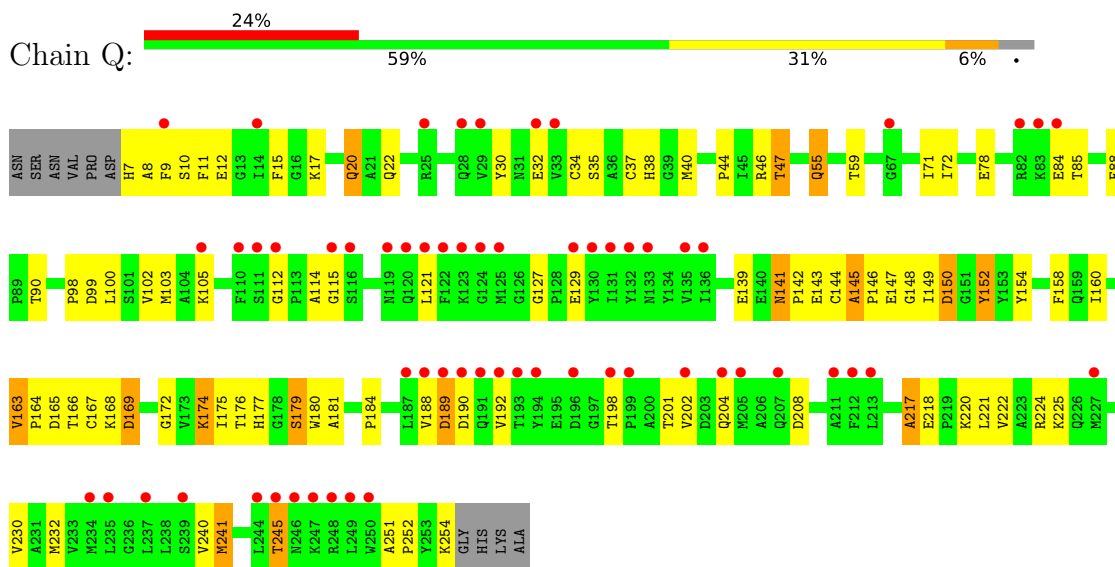




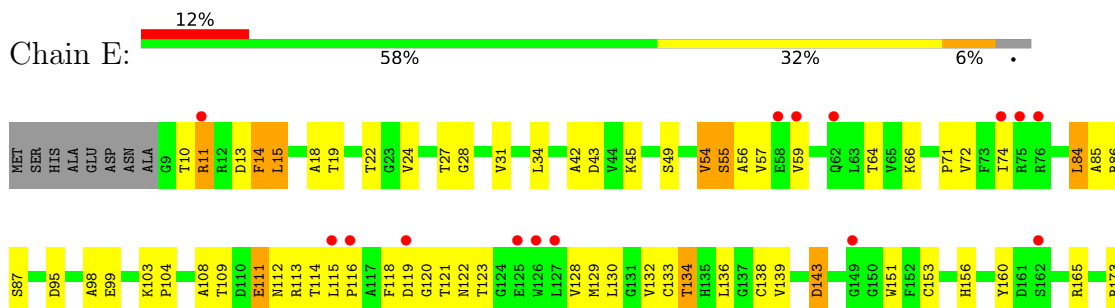
- Molecule 2: Cytochrome c1

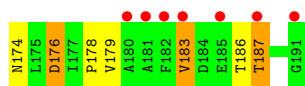


- Molecule 2: Cytochrome c1

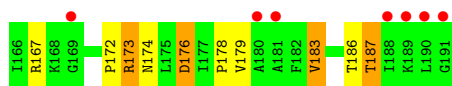


- Molecule 3: Ubiquinol-cytochrome c reductase iron-sulfur subunit





- Molecule 3: Ubiquinol-cytochrome c reductase iron-sulfur subunit



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	95.63Å 154.36Å 103.06Å 90.00° 113.57° 90.00°	Depositor
Resolution (Å)	59.77 – 3.51 59.77 – 3.51	Depositor EDS
% Data completeness (in resolution range)	96.5 (59.77-3.51) 96.6 (59.77-3.51)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.91 (at 3.49Å)	Xtrriage
Refinement program	PHENIX dev_3885, CNS 1.1	Depositor
R, R_{free}	0.221 , 0.289 0.243 , 0.292	Depositor DCC
R_{free} test set	1661 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	99.0	Xtrriage
Anisotropy	0.858	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.25 , 65.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	13919	wwPDB-VP
Average B, all atoms (Å ²)	119.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.03% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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: UNL, HEM, HEC, FES, PG6, SMA

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	C	0.90	0/3608	1.08	10/4955 (0.2%)
1	P	0.96	1/3604 (0.0%)	1.09	7/4951 (0.1%)
2	D	0.72	0/1956	0.92	0/2647
2	Q	0.70	0/1952	0.91	0/2643
3	E	0.75	1/1402 (0.1%)	0.95	1/1905 (0.1%)
3	R	0.76	0/1406	0.95	4/1910 (0.2%)
All	All	0.84	2/13928 (0.0%)	1.01	22/19011 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	P	0	1
2	D	0	1
2	Q	0	2
All	All	0	4

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	138	CYS	CB-SG	-6.92	1.70	1.82
1	P	118	TYR	CB-CG	-5.40	1.43	1.51

The worst 5 of 22 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	84	LEU	CA-CB-CG	7.76	133.15	115.30
1	P	256	LEU	CB-CG-CD1	-7.04	99.04	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	R	84	LEU	CA-CB-CG	6.99	131.37	115.30
1	C	355	ARG	NE-CZ-NH1	-6.98	116.81	120.30
1	P	19	LEU	CA-CB-CG	6.84	131.03	115.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	D	167	CYS	Peptide
1	P	356	SER	Peptide
2	Q	148	GLY	Peptide
2	Q	167	CYS	Peptide

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	C	3472	0	3424	52	0
1	P	3468	0	3413	56	0
2	D	1908	0	1840	29	0
2	Q	1904	0	1829	32	0
3	E	1372	0	1346	28	0
3	R	1376	0	1350	28	0
4	C	86	0	60	2	0
4	P	86	0	60	3	0
5	C	37	0	42	3	0
5	P	37	0	42	3	0
6	C	25	0	0	0	0
6	P	36	0	0	1	0
7	D	43	0	30	5	0
7	Q	43	0	30	7	0
8	E	4	0	0	0	0
8	R	4	0	0	1	0
9	Q	18	0	26	0	0
All	All	13919	0	13492	222	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.

The worst 5 of 222 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:C:44:TRP:HB3	1:C:114:ARG:HG3	1.72	0.71
1:P:4:ILE:HG13	1:P:231:ARG:HE	1.56	0.69
1:C:162:ILE:HA	1:C:165:LEU:HD12	1.76	0.68
1:P:44:TRP:HB3	1:P:114:ARG:HG3	1.75	0.67
1:C:123:ALA:O	1:C:355:ARG:NH1	2.28	0.67

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	C	430/437 (98%)	363 (84%)	55 (13%)	12 (3%)	5	34
1	P	430/437 (98%)	359 (84%)	58 (14%)	13 (3%)	4	32
2	D	246/258 (95%)	195 (79%)	32 (13%)	19 (8%)	1	11
2	Q	246/258 (95%)	195 (79%)	32 (13%)	19 (8%)	1	11
3	E	181/191 (95%)	146 (81%)	24 (13%)	11 (6%)	1	16
3	R	181/191 (95%)	142 (78%)	29 (16%)	10 (6%)	2	19
All	All	1714/1772 (97%)	1400 (82%)	230 (13%)	84 (5%)	2	21

5 of 84 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	123	ALA
1	C	125	ARG
1	C	411	LEU
1	C	417	PRO
2	D	12	GLU

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	C	356/360 (99%)	285 (80%)	71 (20%)	1	7
1	P	355/360 (99%)	279 (79%)	76 (21%)	1	6
2	D	197/206 (96%)	153 (78%)	44 (22%)	1	5
2	Q	196/206 (95%)	152 (78%)	44 (22%)	1	5
3	E	142/149 (95%)	110 (78%)	32 (22%)	1	5
3	R	143/149 (96%)	109 (76%)	34 (24%)	0	4
All	All	1389/1430 (97%)	1088 (78%)	301 (22%)	1	6

5 of 301 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	Q	59	THR
3	R	123	THR
2	Q	100	LEU
2	Q	225	LYS
3	R	187	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 18 such sidechains are listed below:

Mol	Chain	Res	Type
2	Q	204	GLN
3	R	112	ASN
3	R	39	ASN
3	E	112	ASN
2	Q	22	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 15 ligands modelled in this entry, 4 are unknown - 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	HEM	P	502	1	41,50,50	1.58	7 (17%)	45,82,82	2.02	13 (28%)
9	PG6	Q	502	-	17,17,17	0.71	0	16,16,16	0.56	0
4	HEM	P	501	1	41,50,50	1.63	6 (14%)	45,82,82	1.90	14 (31%)
5	SMA	C	503	-	38,38,38	2.32	6 (15%)	48,52,52	2.55	18 (37%)
7	HEC	D	501	2	32,50,50	2.09	8 (25%)	24,82,82	2.88	8 (33%)
4	HEM	C	502	1	41,50,50	1.59	7 (17%)	45,82,82	2.28	16 (35%)
8	FES	R	501	3	0,4,4	-	-	-	-	-
8	FES	E	501	3	0,4,4	-	-	-	-	-
7	HEC	Q	501	2	32,50,50	2.30	7 (21%)	24,82,82	2.71	7 (29%)
5	SMA	P	503	-	38,38,38	2.24	6 (15%)	48,52,52	2.14	17 (35%)
4	HEM	C	501	1	41,50,50	1.91	8 (19%)	45,82,82	1.92	12 (26%)

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	HEM	P	502	1	-	5/12/54/54	-
9	PG6	Q	502	-	-	5/15/15/15	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	HEM	P	501	1	-	3/12/54/54	-
5	SMA	C	503	-	-	14/34/34/34	0/2/2/2
7	HEC	D	501	2	-	6/10/54/54	-
4	HEM	C	502	1	-	3/12/54/54	-
8	FES	R	501	3	-	-	0/1/1/1
8	FES	E	501	3	-	-	0/1/1/1
7	HEC	Q	501	2	-	7/10/54/54	-
5	SMA	P	503	-	-	15/34/34/34	0/2/2/2
4	HEM	C	501	1	-	3/12/54/54	-

The worst 5 of 55 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	P	503	SMA	C3-C2	8.54	1.51	1.34
5	C	503	SMA	C8-C8A	8.19	1.52	1.39
5	P	503	SMA	C7-C8	7.28	1.50	1.40
5	C	503	SMA	C3-C2	6.76	1.48	1.34
4	C	501	HEM	FE-NB	6.51	2.29	1.96

The worst 5 of 105 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	503	SMA	C14-C15-C16	-8.55	108.86	125.61
7	D	501	HEC	CMC-C2C-C1C	-7.69	116.64	128.46
7	Q	501	HEC	CBD-CAD-C3D	7.68	125.73	112.62
7	D	501	HEC	CBD-CAD-C3D	7.55	125.50	112.62
7	Q	501	HEC	CMC-C2C-C1C	-6.58	118.35	128.46

There are no chirality outliers.

5 of 61 torsion outliers are listed below:

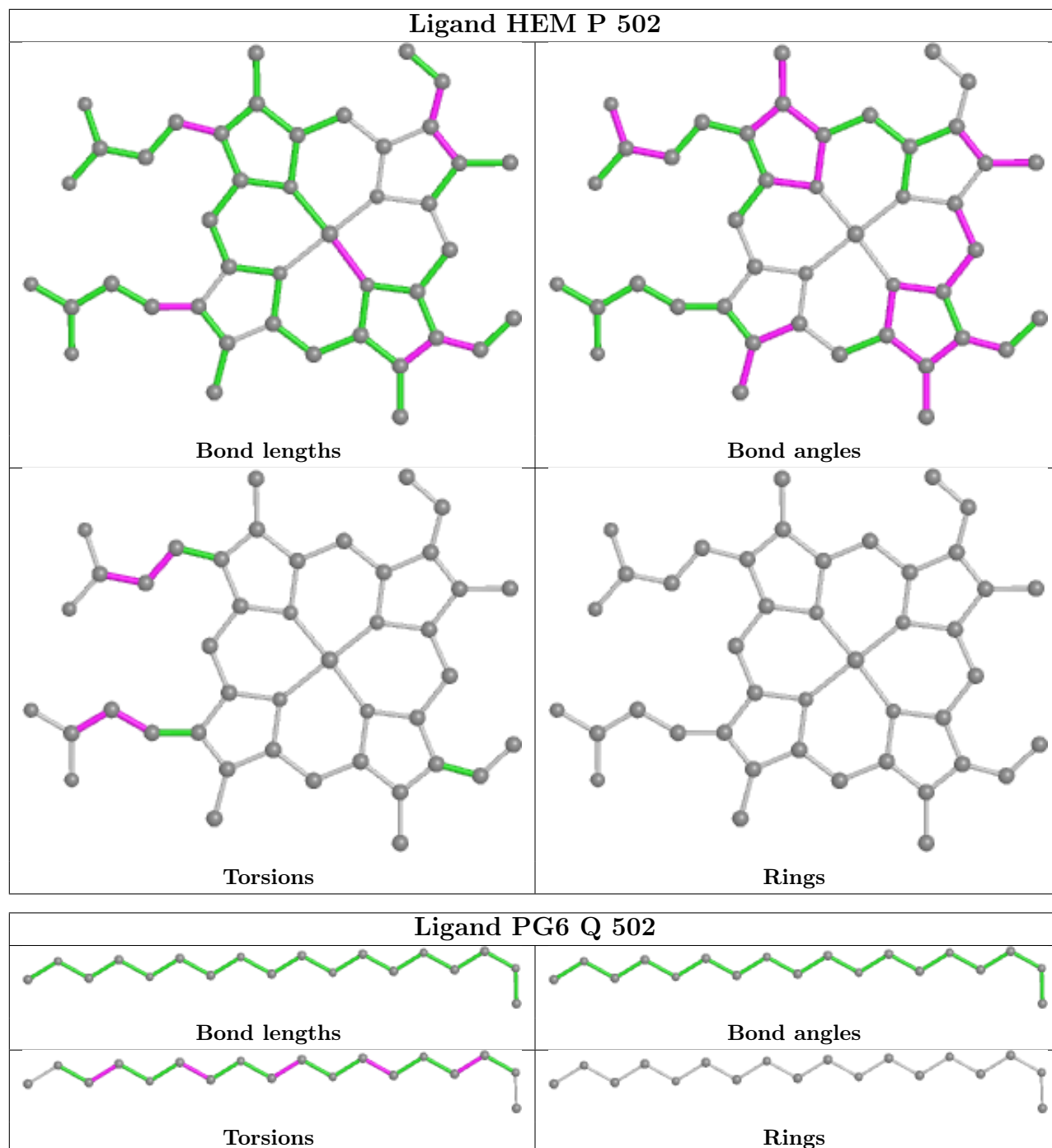
Mol	Chain	Res	Type	Atoms
4	C	502	HEM	C2A-CAA-CBA-CGA
4	P	502	HEM	C2A-CAA-CBA-CGA
5	C	503	SMA	C13-C14-O14-C25
5	C	503	SMA	C17-C18-C19-C20
5	C	503	SMA	C17-C18-C19-C26

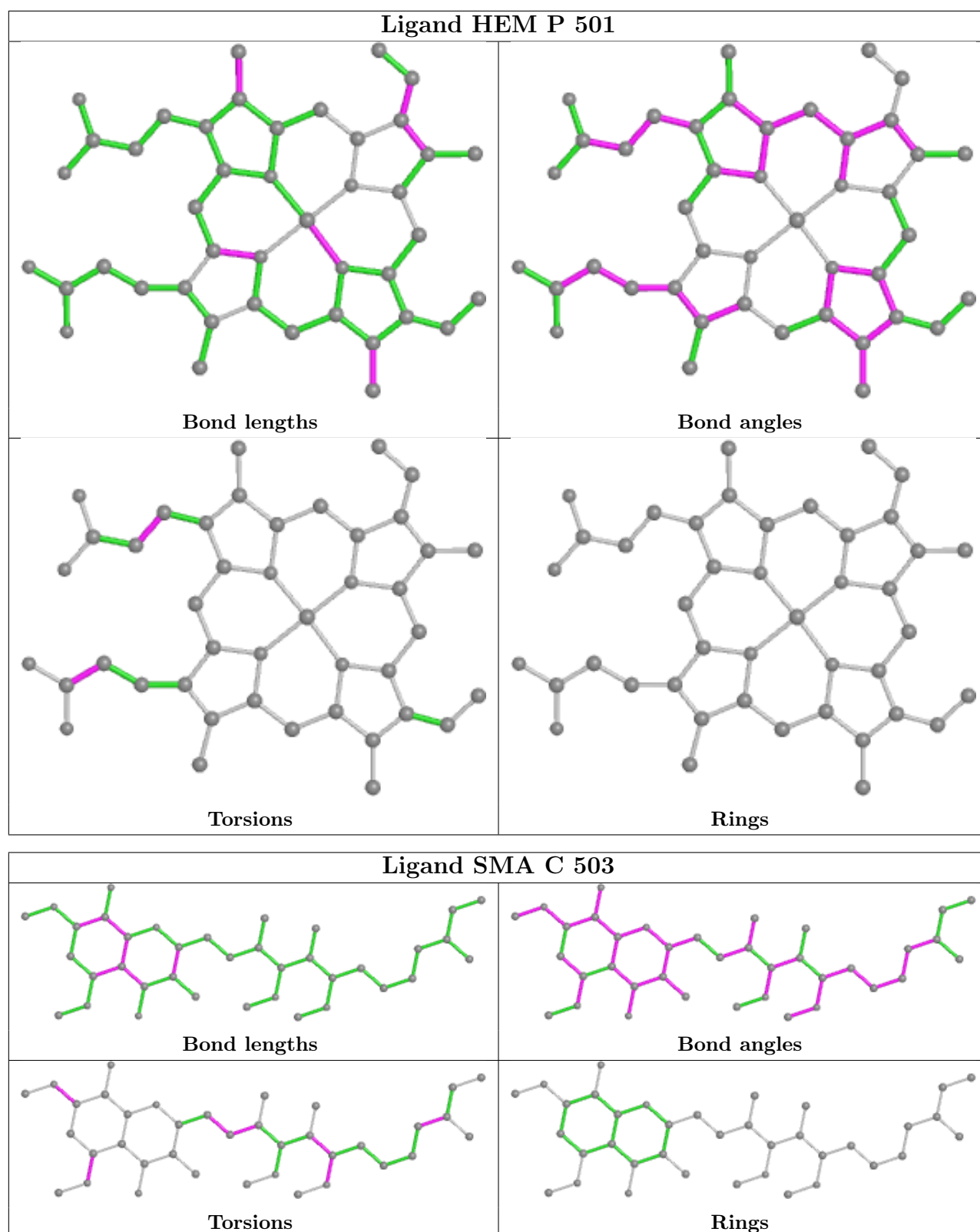
There are no ring outliers.

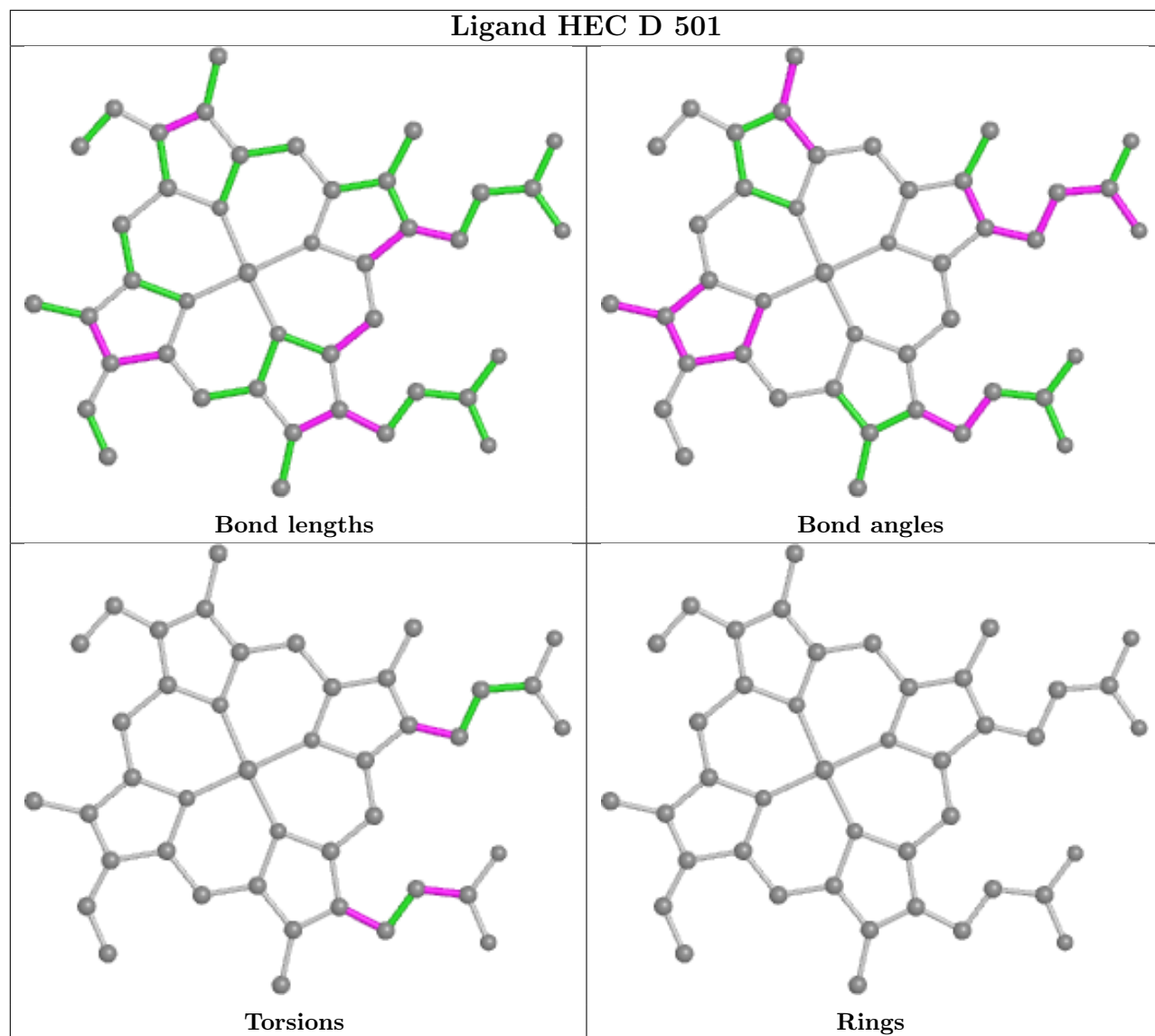
7 monomers are involved in 24 short contacts:

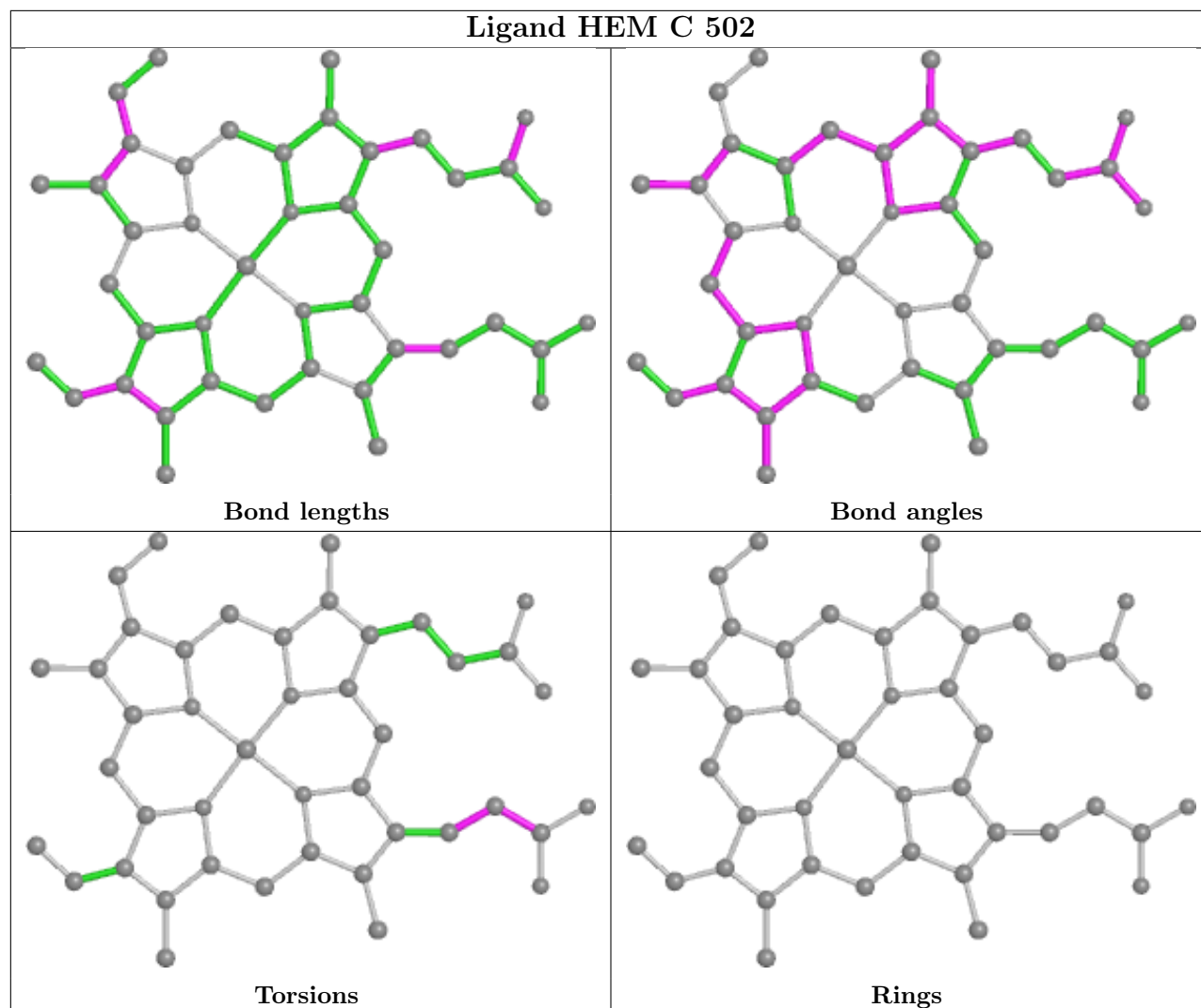
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	P	501	HEM	3	0
5	C	503	SMA	3	0
7	D	501	HEC	5	0
8	R	501	FES	1	0
7	Q	501	HEC	7	0
5	P	503	SMA	3	0
4	C	501	HEM	2	0

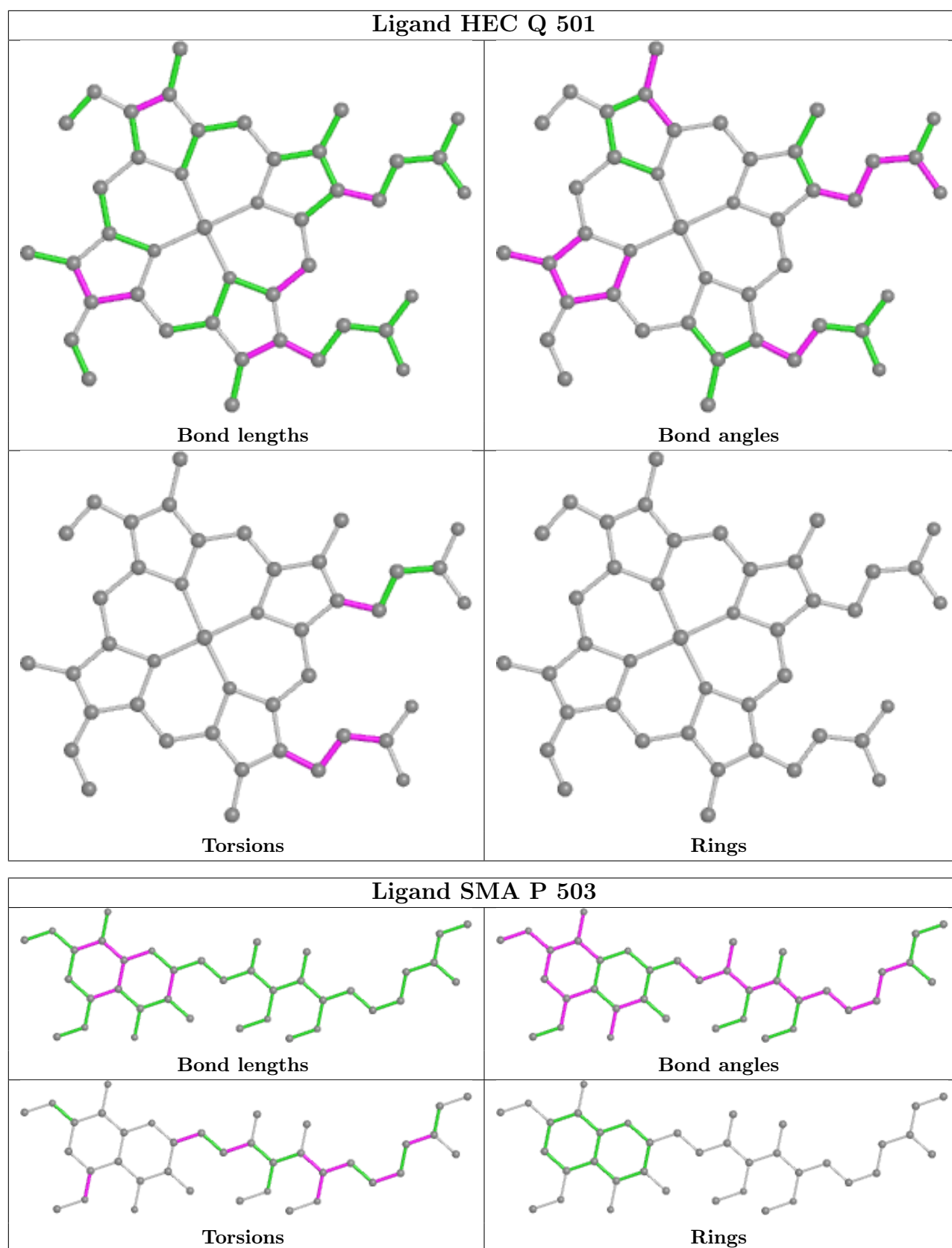
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

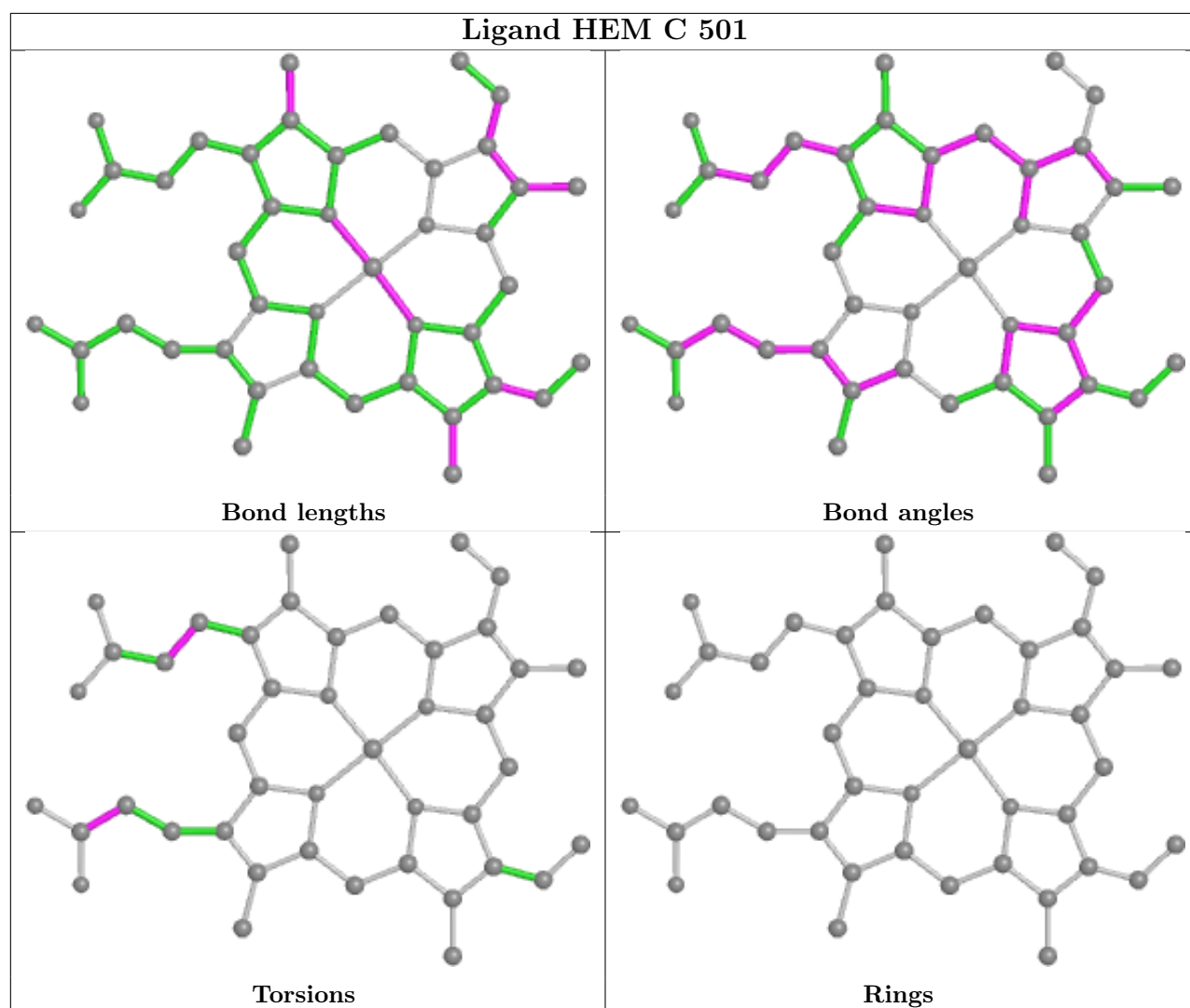












5.7 Other polymers [i](#)

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, 95th 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	C	431/437 (98%)	0.05	14 (3%) 47 36	69, 101, 141, 197	0
1	P	431/437 (98%)	0.17	20 (4%) 32 24	66, 101, 141, 170	0
2	D	248/258 (96%)	1.52	85 (34%) 0 0	97, 140, 179, 228	0
2	Q	248/258 (96%)	1.12	61 (24%) 0 0	95, 139, 181, 230	0
3	E	183/191 (95%)	0.32	22 (12%) 4 4	84, 126, 167, 185	0
3	R	183/191 (95%)	0.62	34 (18%) 1 1	88, 129, 170, 190	0
All	All	1724/1772 (97%)	0.53	236 (13%) 3 3	66, 118, 167, 230	0

The worst 5 of 236 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	Q	121	LEU	11.3
2	D	212	PHE	9.5
2	D	110	PHE	9.3
2	Q	124	GLY	8.7
2	D	226	GLN	8.6

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

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands

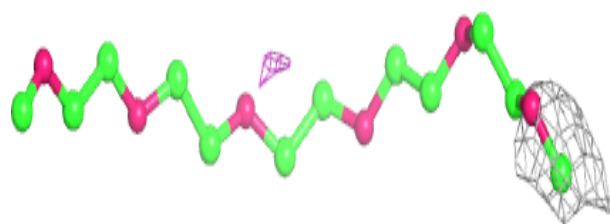
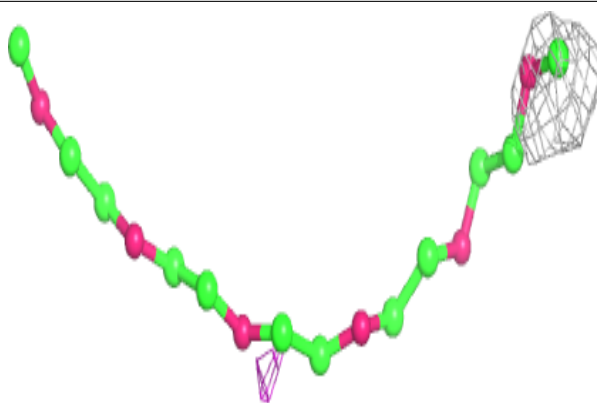
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
9	PG6	Q	502	18/18	0.42	1.53	71,114,137,139	0
6	UNL	P	504	28/-	0.75	0.56	72,136,156,165	0
6	UNL	C	505	8/-	0.81	0.21	99,113,116,122	0
6	UNL	P	505	8/-	0.83	0.25	82,94,101,110	0
6	UNL	C	504	17/-	0.85	0.28	97,127,136,148	17
7	HEC	D	501	43/43	0.90	0.47	100,114,130,135	0
5	SMA	C	503	37/37	0.90	0.54	78,98,110,112	0
5	SMA	P	503	37/37	0.91	0.43	85,102,111,117	0
7	HEC	Q	501	43/43	0.94	0.26	100,113,129,136	0
4	HEM	C	502	43/43	0.96	0.35	80,107,117,126	0
4	HEM	C	501	43/43	0.97	0.30	80,92,112,124	0
4	HEM	P	501	43/43	0.97	0.37	73,91,105,129	0
8	FES	E	501	4/4	0.97	0.22	88,99,112,114	0
4	HEM	P	502	43/43	0.97	0.31	79,106,117,128	0
8	FES	R	501	4/4	0.99	0.20	102,103,110,120	0

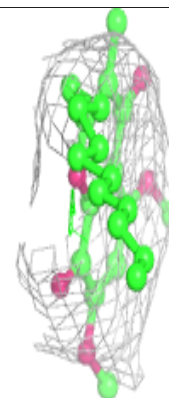
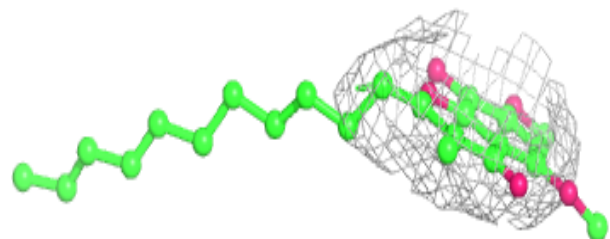
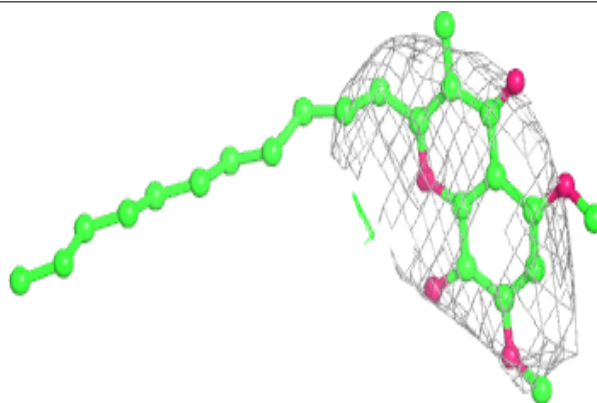
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

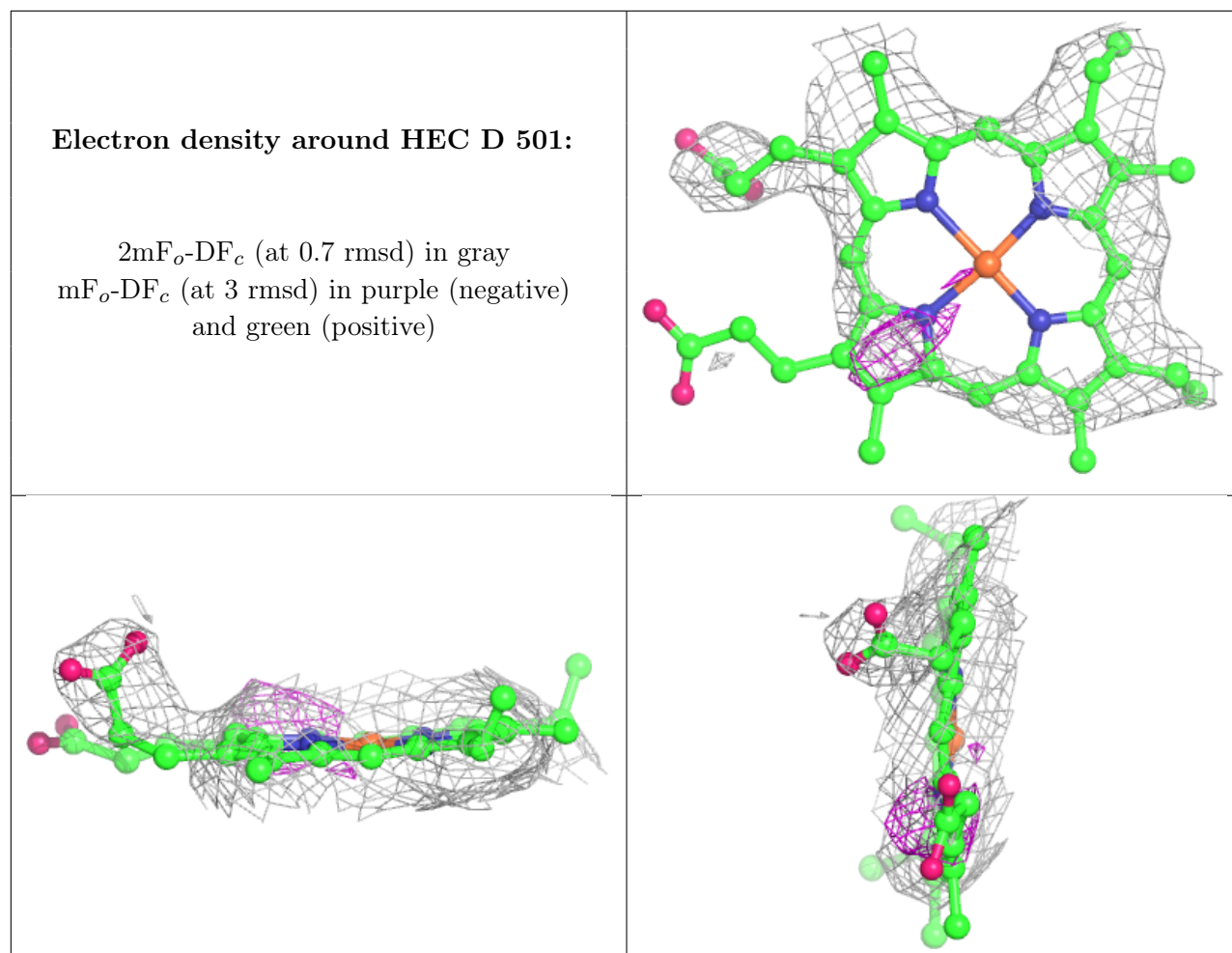
Electron density around PG6 Q 502:

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

**Electron density around UNL P 504:**

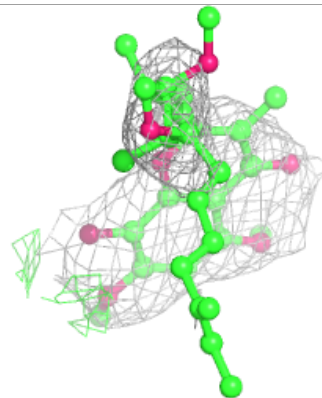
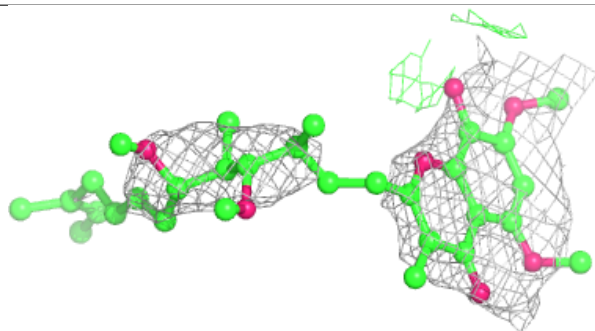
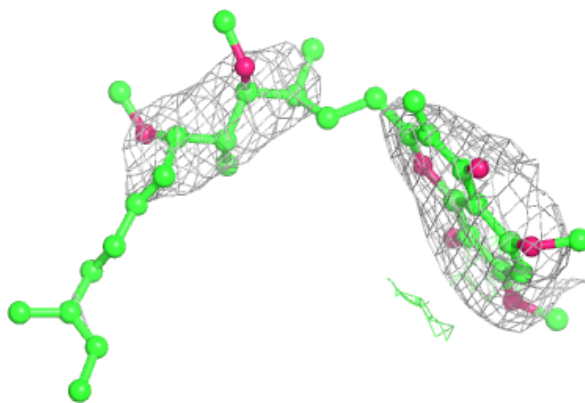
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



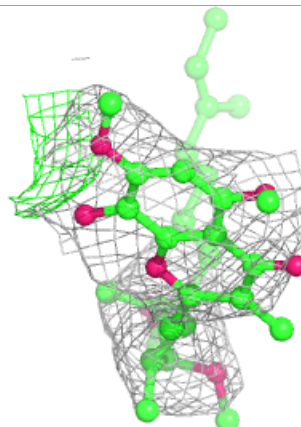
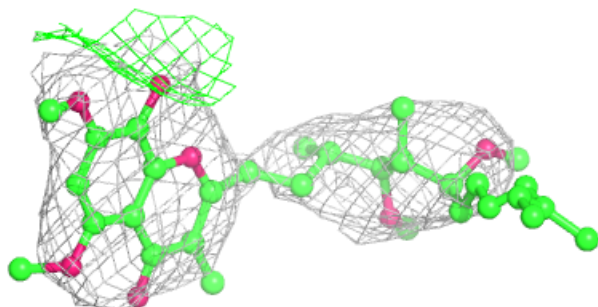
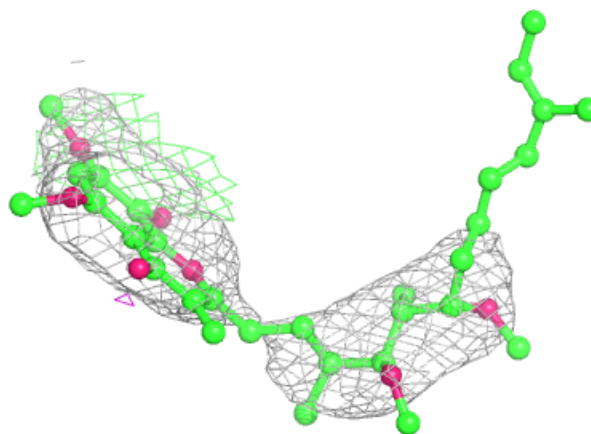


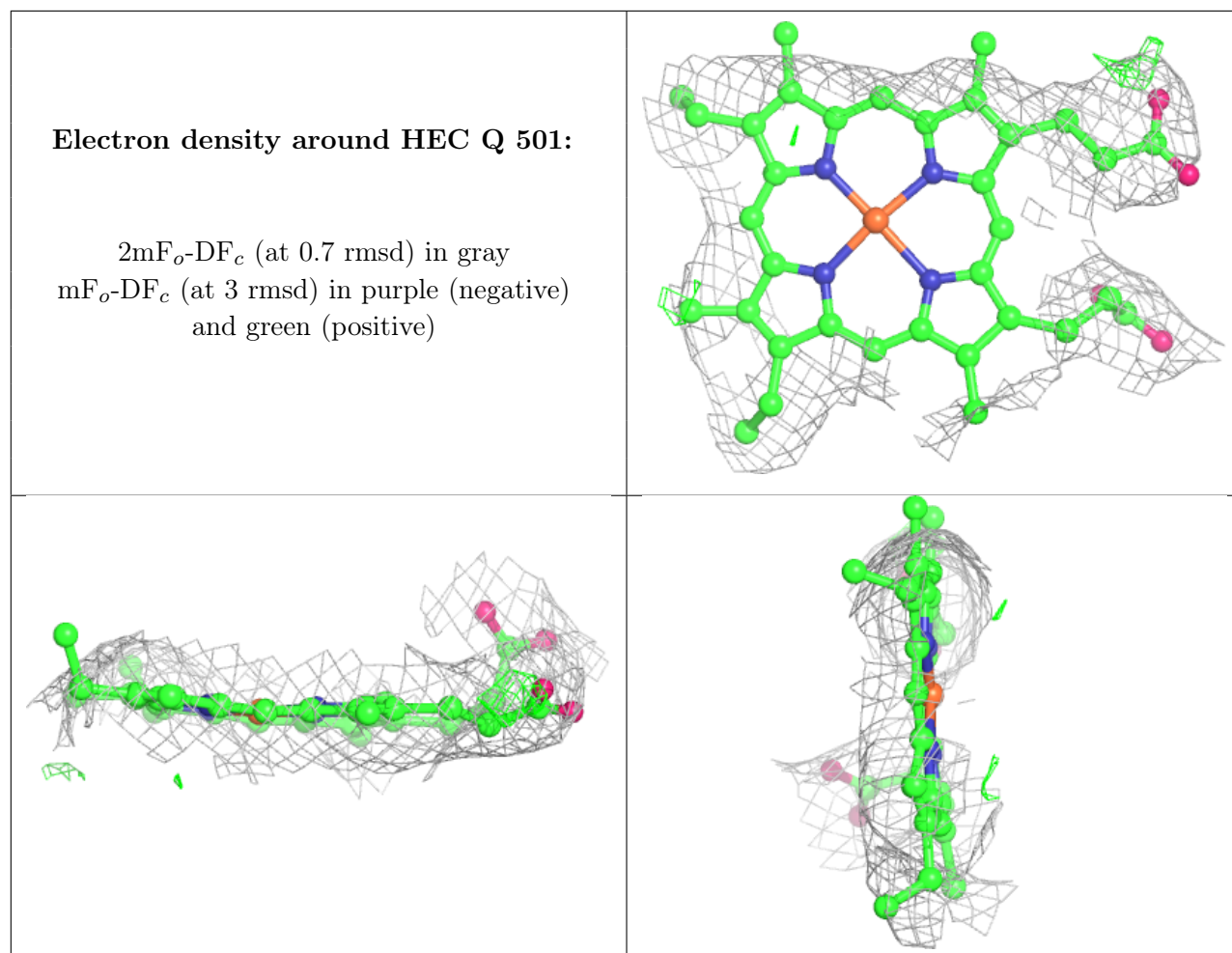
Electron density around SMA C 503:

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

**Electron density around SMA P 503:**

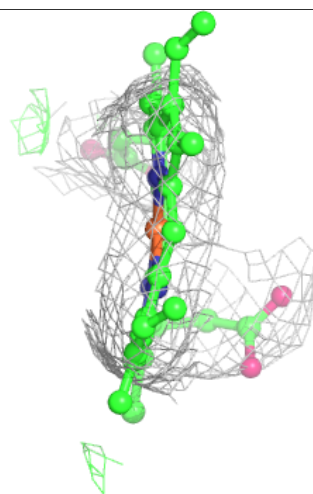
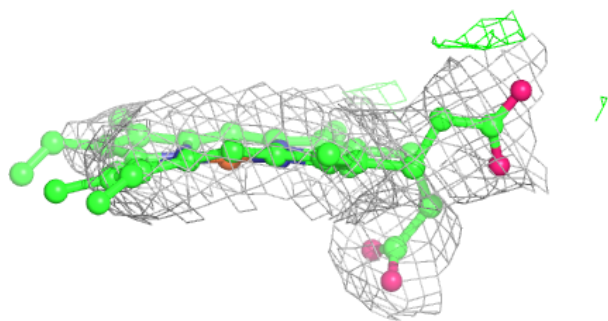
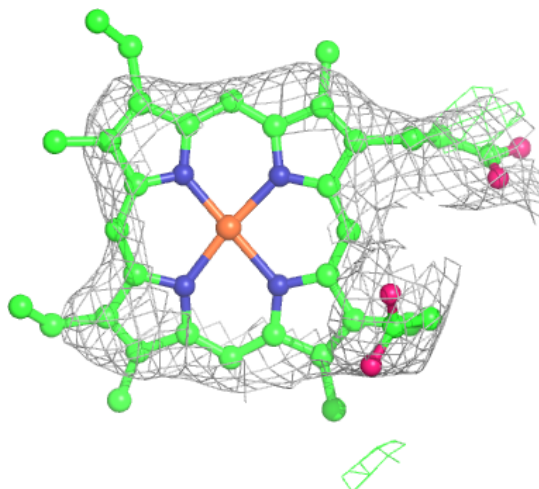
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

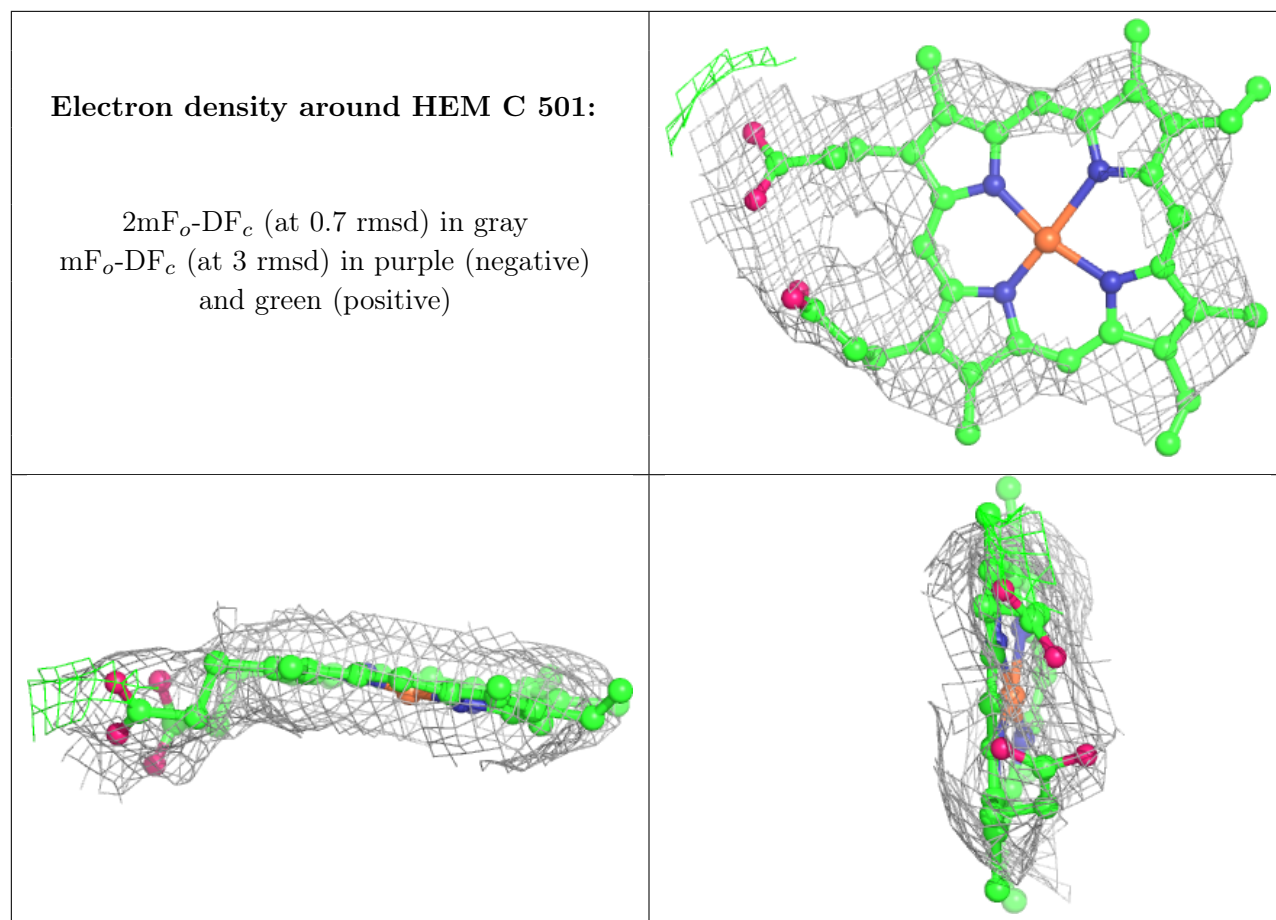




Electron density around HEM C 502:

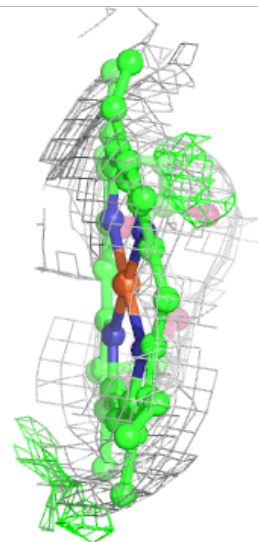
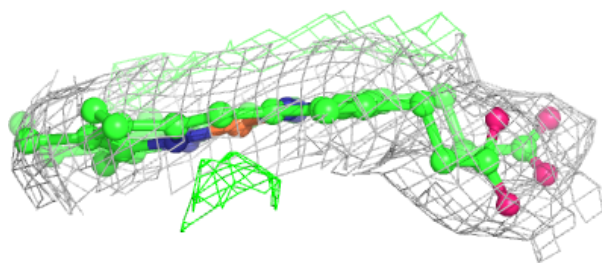
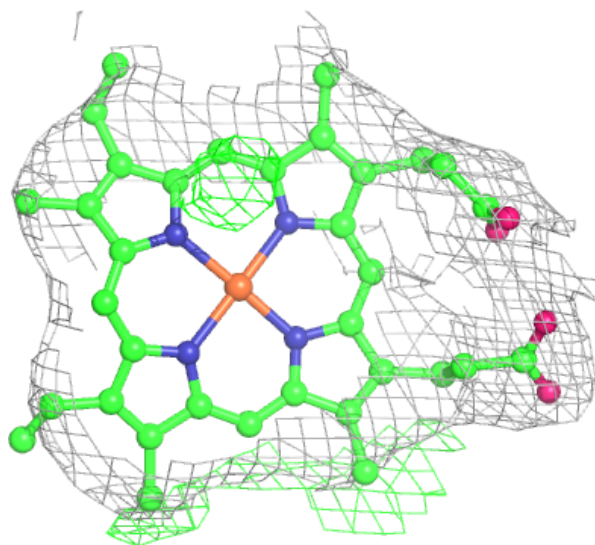
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

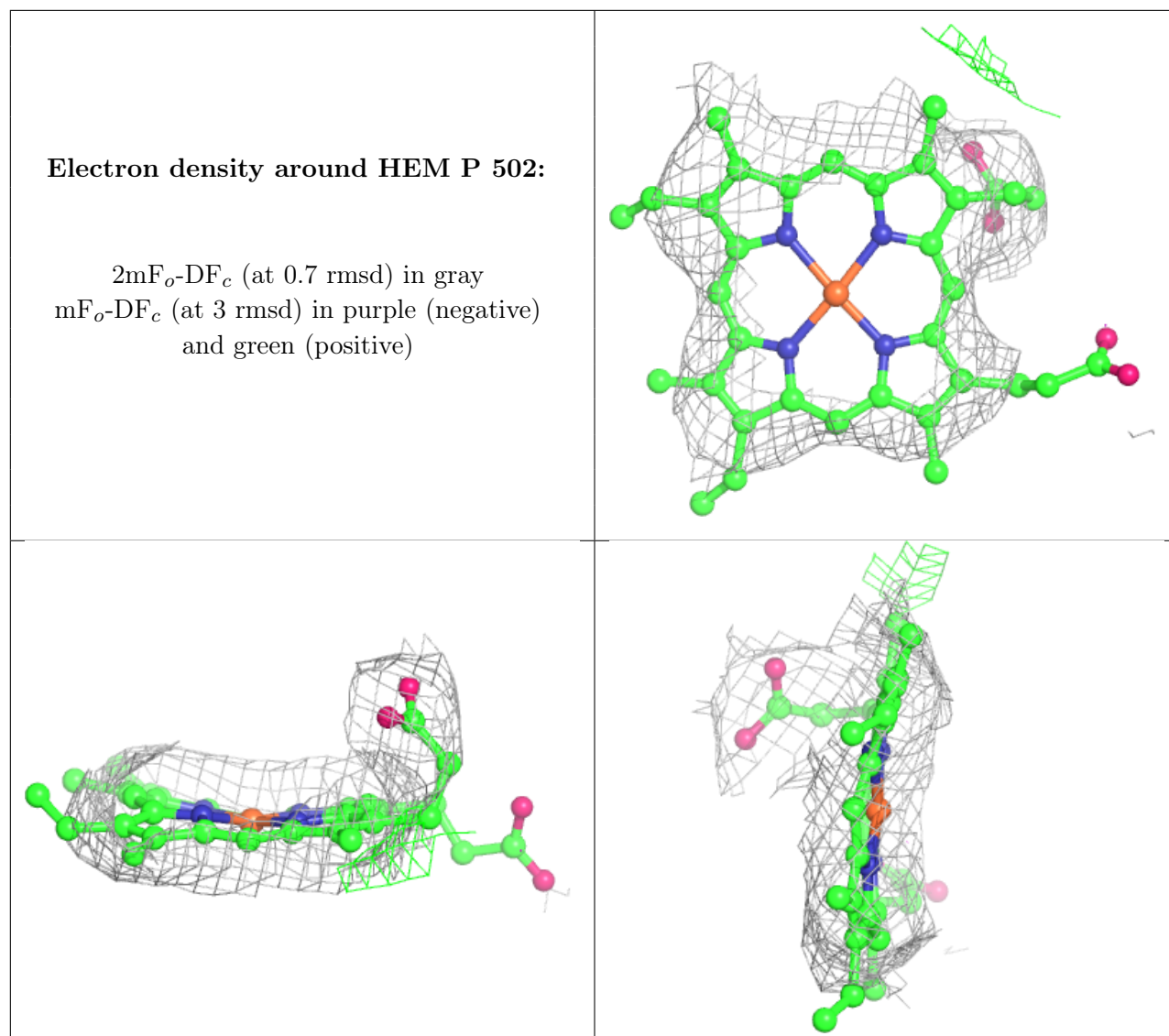




Electron density around HEM P 501:

$2mF_o-DF_c$ (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.