



Full wwPDB X-ray Structure Validation Report ⓘ

May 23, 2024 – 10:13 AM EDT

PDB ID : 3NN2
Title : Structure of chlorite dismutase from Candidatus Nitrospira defluvii in complex with cyanide
Authors : Kostan, J.; Sjoebloom, B.; Maixner, F.; Mlynek, G.; Furtmueller, P.G.; Obinger, C.; Wagner, M.; Daims, H.; Djinovic-Carugo, K.
Deposited on : 2010-06-23
Resolution : 1.94 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)
Xtrriage (Phenix) : 1.13
EDS : 2.36.2
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) : 2.36.2

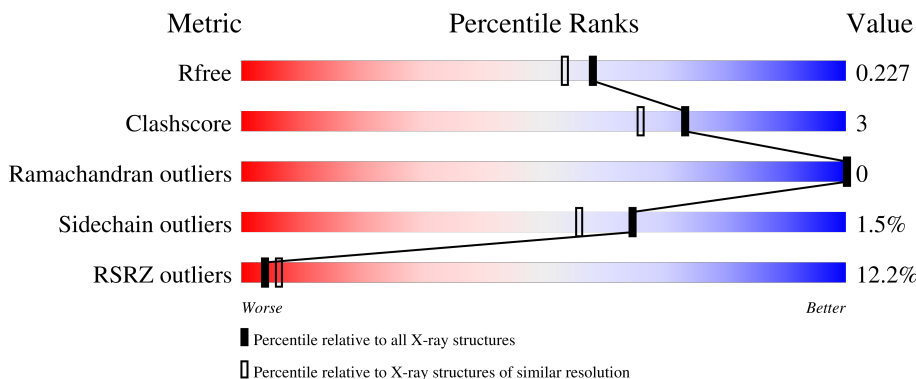
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.94 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.



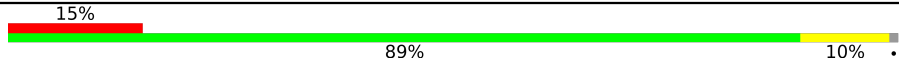
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4310 (1.96-1.92)
Clashscore	141614	1023 (1.94-1.94)
Ramachandran outliers	138981	1007 (1.94-1.94)
Sidechain outliers	138945	1007 (1.94-1.94)
RSRZ outliers	127900	4250 (1.96-1.92)

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	A	241	 5% 92% 6% ..
1	B	241	 13% 91% 8% .
1	C	241	 12% 92% 7% .
1	D	241	 16% 92% 7% .

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Mol	Chain	Length	Quality of chain
1	E	241	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a red segment on the left labeled '15%', a large green segment in the middle labeled '89%', and a yellow segment on the right labeled '10%'. A small grey dot is visible at the far right end of the bar.</p>

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 11010 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 Chlorite dismutase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	238	Total 1937	C 1235	N 339	O 357	S 6	0	2	0
1	B	239	Total 1938	C 1237	N 337	O 357	S 7	0	1	0
1	C	239	Total 1938	C 1237	N 337	O 357	S 7	0	1	0
1	D	239	Total 1938	C 1237	N 337	O 357	S 7	0	1	0
1	E	239	Total 1935	C 1234	N 337	O 357	S 7	0	1	0

There are 15 discrepancies between the modelled and reference sequences:

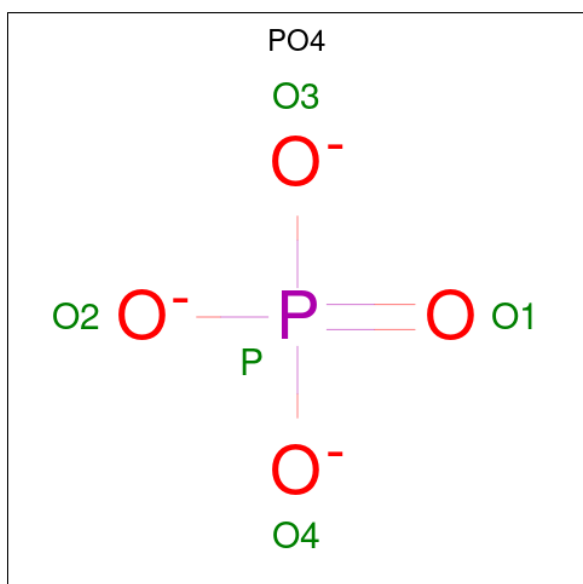
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	cloning artifact	UNP B3U4H7
A	-1	ALA	-	cloning artifact	UNP B3U4H7
A	0	MET	-	cloning artifact	UNP B3U4H7
B	-2	GLY	-	cloning artifact	UNP B3U4H7
B	-1	ALA	-	cloning artifact	UNP B3U4H7
B	0	MET	-	cloning artifact	UNP B3U4H7
C	-2	GLY	-	cloning artifact	UNP B3U4H7
C	-1	ALA	-	cloning artifact	UNP B3U4H7
C	0	MET	-	cloning artifact	UNP B3U4H7
D	-2	GLY	-	cloning artifact	UNP B3U4H7
D	-1	ALA	-	cloning artifact	UNP B3U4H7
D	0	MET	-	cloning artifact	UNP B3U4H7
E	-2	GLY	-	cloning artifact	UNP B3U4H7
E	-1	ALA	-	cloning artifact	UNP B3U4H7
E	0	MET	-	cloning artifact	UNP B3U4H7

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



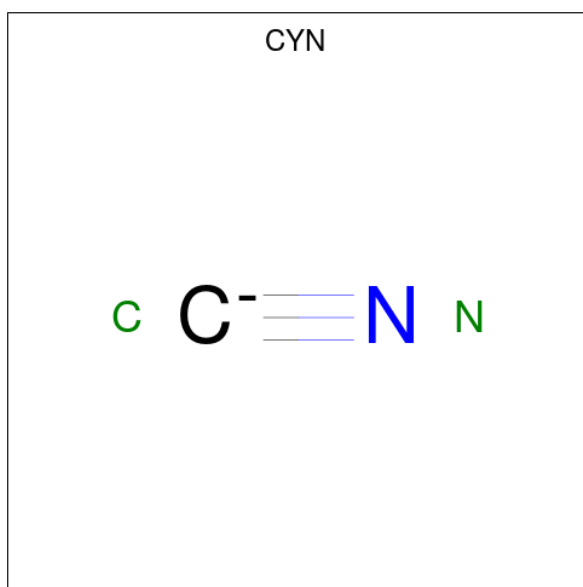
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
2	A	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	B	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	E	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 3 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



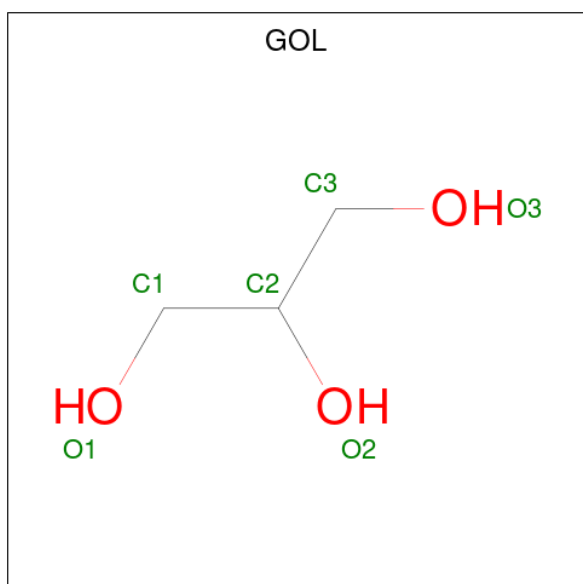
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	P	0	0
			5	4	1		
3	A	1	Total	O	P	0	0
			5	4	1		
3	A	1	Total	O	P	0	0
			5	4	1		
3	A	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	C	1	Total	O	P	0	0
			5	4	1		
3	C	1	Total	O	P	0	0
			5	4	1		
3	C	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		
3	E	1	Total	O	P	0	0
			5	4	1		
3	E	1	Total	O	P	0	0
			5	4	1		

- Molecule 4 is CYANIDE ION (three-letter code: CYN) (formula: CN).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	N	0	0
			2	1	1		
4	B	1	Total	C	N	0	0
			2	1	1		
4	C	1	Total	C	N	0	0
			2	1	1		
4	D	1	Total	C	N	0	0
			2	1	1		
4	E	1	Total	C	N	0	0
			2	1	1		

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0

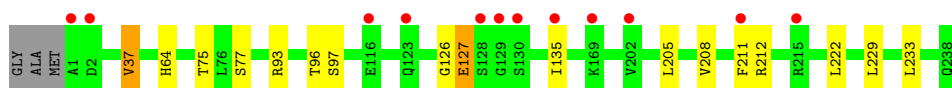
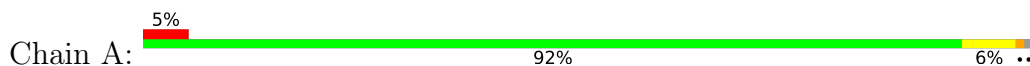
- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	195	Total O 195 195	0	0
6	B	213	Total O 213 213	0	0
6	C	193	Total O 193 193	0	0
6	D	167	Total O 167 167	0	0
6	E	163	Total O 163 163	0	0

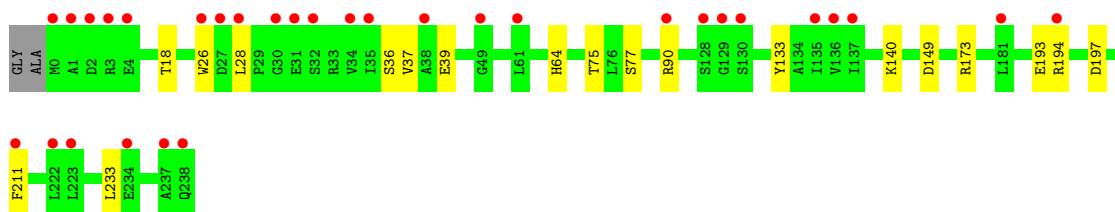
3 Residue-property plots [i](#)

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.

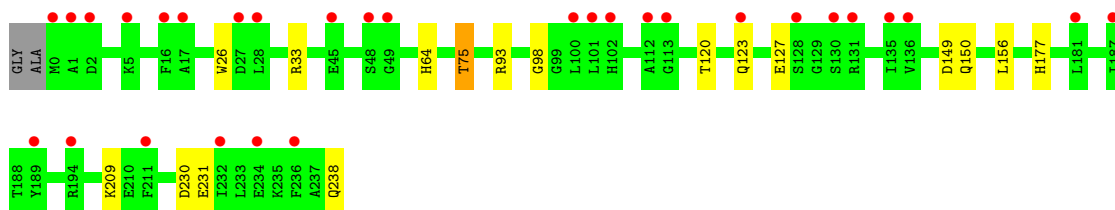
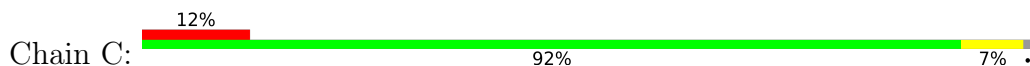
- Molecule 1: Chlorite dismutase



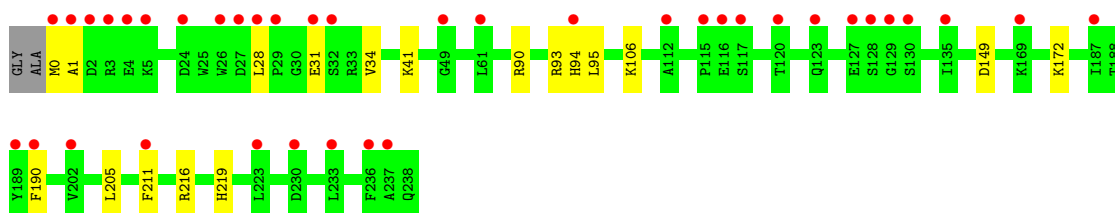
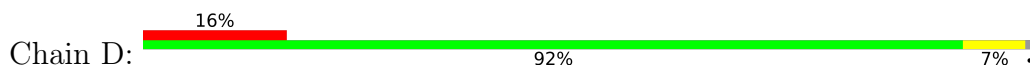
- Molecule 1: Chlorite dismutase



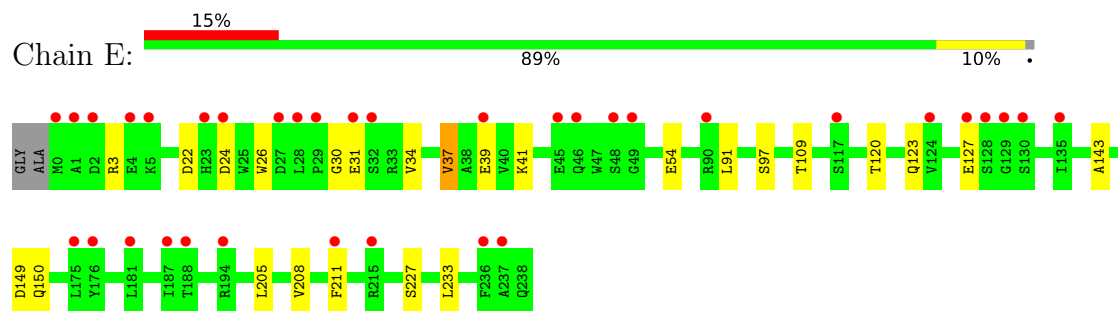
- Molecule 1: Chlorite dismutase



- Molecule 1: Chlorite dismutase



● Molecule 1: Chlorite dismutase



4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α , β , γ	145.49Å 145.49Å 136.01Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	32.84 – 1.94 32.84 – 1.94	Depositor EDS
% Data completeness (in resolution range)	98.9 (32.84-1.94) 98.9 (32.84-1.94)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.90 (at 1.94Å)	Xtrriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.177 , 0.212 0.197 , 0.227	Depositor DCC
R_{free} test set	6083 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	31.7	Xtrriage
Anisotropy	0.088	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 47.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.018 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	11010	wwPDB-VP
Average B, all atoms (Å ²)	38.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.48% 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: PO4, HEM, CYN, GOL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.58	1/1984 (0.1%)	0.66	0/2683
1	B	0.58	0/1985	0.67	3/2683 (0.1%)
1	C	0.58	0/1985	0.68	2/2683 (0.1%)
1	D	0.52	0/1985	0.63	2/2683 (0.1%)
1	E	0.51	0/1982	0.66	2/2679 (0.1%)
All	All	0.55	1/9921 (0.0%)	0.66	9/13411 (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	A	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	127	GLU	CB-CG	5.08	1.61	1.52

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	B	149	ASP	CB-CG-OD2	-6.42	112.52	118.30
1	D	149	ASP	CB-CG-OD1	6.29	123.96	118.30
1	D	149	ASP	CB-CG-OD2	-5.75	113.13	118.30
1	B	149	ASP	CB-CG-OD1	5.51	123.26	118.30
1	B	197	ASP	CB-CG-OD1	5.29	123.07	118.30
1	C	149	ASP	CB-CG-OD1	5.29	123.06	118.30
1	E	149	ASP	CB-CG-OD2	-5.28	113.55	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	149	ASP	CB-CG-OD2	-5.19	113.62	118.30
1	E	149	ASP	CB-CG-OD1	5.04	122.83	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	126	GLY	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1937	0	1903	16	0
1	B	1938	0	1910	13	0
1	C	1938	0	1910	11	0
1	D	1938	0	1910	13	0
1	E	1935	0	1901	15	0
2	A	43	0	30	0	0
2	B	43	0	30	1	0
2	C	43	0	30	2	0
2	D	43	0	30	0	0
2	E	43	0	30	1	0
3	A	25	0	0	0	0
3	B	20	0	0	0	0
3	C	15	0	0	0	0
3	D	20	0	0	0	0
3	E	10	0	0	0	0
4	A	2	0	0	0	0
4	B	2	0	0	0	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
4	E	2	0	0	0	0
5	A	18	0	24	3	0
5	B	24	0	32	3	0
5	C	18	0	24	1	0
5	D	12	0	16	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	E	6	0	8	0	0
6	A	195	0	0	2	0
6	B	213	0	0	4	0
6	C	193	0	0	2	0
6	D	167	0	0	3	0
6	E	163	0	0	1	0
All	All	11010	0	9788	65	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 3.

All (65) 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:E:37:VAL:HG13	1:E:233:LEU:HD13	1.51	0.90
1:E:37:VAL:HG22	1:E:233:LEU:HD22	1.61	0.80
2:B:239:HEM:HMB1	2:B:239:HEM:HBB2	1.81	0.63
1:B:193:GLU:HG2	5:B:246:GOL:H11	1.79	0.63
1:C:177:HIS:NE2	5:C:246:GOL:H12	2.14	0.61
1:A:37:VAL:HG22	1:A:233:LEU:HB3	1.83	0.61
1:D:31:GLU:HA	1:D:34:VAL:HG12	1.84	0.59
1:D:28:LEU:HD11	1:D:94:HIS:CE1	2.42	0.54
1:B:75:THR:HG22	1:B:77:SER:H	1.73	0.54
1:E:205:LEU:O	1:E:208:VAL:HG22	2.09	0.53
1:C:98:GLY:HA3	6:C:654:HOH:O	2.09	0.53
1:B:173:ARG:HE	5:B:245:GOL:H11	1.74	0.52
1:B:133:TYR:OH	1:C:75:THR:HG22	2.09	0.52
1:D:93:ARG:HD3	1:E:26:TRP:HB3	1.91	0.52
1:B:18:THR:HG22	6:B:483:HOH:O	2.09	0.52
1:A:205:LEU:O	1:A:208:VAL:HG22	2.10	0.52
2:C:239:HEM:CMB	2:C:239:HEM:HBB2	2.40	0.50
1:D:95:LEU:HD21	6:D:969:HOH:O	2.10	0.50
1:E:37:VAL:HG13	1:E:233:LEU:CD1	2.34	0.49
1:D:106:LYS:NZ	6:D:1023:HOH:O	2.44	0.49
1:D:31:GLU:OE1	1:D:34:VAL:HG11	2.12	0.49
1:A:229:LEU:HB3	5:A:248:GOL:H31	1.95	0.48
1:A:93:ARG:HD3	1:C:26:TRP:HB3	1.94	0.48
1:C:156:LEU:HD22	1:C:209:LYS:HB2	1.96	0.48
1:D:90:ARG:HA	1:D:93:ARG:HD2	1.96	0.48
2:E:239:HEM:HMB1	2:E:239:HEM:HBB2	1.95	0.48
1:A:97:SER:O	1:C:64:HIS:NE2	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:194:ARG:NH2	6:B:842:HOH:O	2.47	0.47
1:E:3:ARG:NH2	1:E:54:GLU:OE2	2.47	0.47
1:E:37:VAL:CG1	1:E:233:LEU:HB3	2.44	0.47
1:C:230:ASP:OD1	1:C:231:GLU:N	2.48	0.46
1:B:173:ARG:HE	5:B:245:GOL:C1	2.28	0.46
1:B:26:TRP:CD1	1:C:93:ARG:HD2	2.50	0.46
1:B:36:SER:OG	1:B:90:ARG:HD3	2.16	0.46
2:C:239:HEM:HBB2	2:C:239:HEM:HMB1	1.95	0.46
1:D:31:GLU:HA	1:D:34:VAL:CG1	2.45	0.46
1:E:120:THR:O	1:E:123:GLN:HG2	2.16	0.45
1:A:37:VAL:HG13	6:A:451:HOH:O	2.15	0.45
1:E:30:GLY:O	1:E:34:VAL:HG23	2.17	0.45
1:E:91:LEU:C	1:E:91:LEU:HD13	2.37	0.45
1:B:39:GLU:OE1	1:B:90:ARG:HG2	2.17	0.45
1:E:205:LEU:HB3	1:E:211[B]:PHE:CE1	2.51	0.45
1:E:109:THR:HG22	1:E:150:GLN:HE22	1.82	0.45
1:A:75:THR:HG22	1:A:77:SER:H	1.82	0.44
1:D:216:ARG:NH2	1:D:219:HIS:O	2.49	0.44
1:D:0:MET:HE3	1:D:1:ALA:HB3	2.00	0.44
1:A:75:THR:HG22	1:A:77:SER:N	2.33	0.44
1:A:135:ILE:HA	1:A:222:LEU:O	2.18	0.43
1:B:64:HIS:HE1	6:B:785:HOH:O	2.02	0.42
1:D:205:LEU:HB3	1:D:211[A]:PHE:CE1	2.54	0.42
1:C:33:ARG:HH22	1:C:238:GLN:C	2.23	0.42
1:D:172:LYS:O	1:D:190:PHE:HA	2.18	0.42
1:E:22:ASP:HB3	1:E:24:ASP:OD1	2.18	0.42
1:A:212[A]:ARG:HD3	6:E:670:HOH:O	2.19	0.42
5:A:246:GOL:H31	6:A:272:HOH:O	2.20	0.42
1:A:64:HIS:NE2	1:E:97:SER:O	2.52	0.42
1:B:140:LYS:NZ	6:B:255:HOH:O	2.53	0.41
1:D:90:ARG:N	6:D:391:HOH:O	2.53	0.41
1:A:96:THR:HG23	6:C:319:HOH:O	2.20	0.41
1:A:212[A]:ARG:HG2	1:E:143:ALA:HB1	2.02	0.41
1:A:229:LEU:N	5:A:248:GOL:H31	2.35	0.41
1:B:37:VAL:HG13	1:B:233:LEU:HB3	2.04	0.40
1:A:37:VAL:CG2	1:A:233:LEU:HB3	2.51	0.40
1:C:120:THR:O	1:C:123:GLN:HG2	2.22	0.40
1:A:93:ARG:HD3	1:C:26:TRP:CG	2.57	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	A	238/241 (99%)	234 (98%)	4 (2%)	0	100	100
1	B	238/241 (99%)	235 (99%)	3 (1%)	0	100	100
1	C	238/241 (99%)	235 (99%)	3 (1%)	0	100	100
1	D	238/241 (99%)	233 (98%)	5 (2%)	0	100	100
1	E	238/241 (99%)	234 (98%)	4 (2%)	0	100	100
All	All	1190/1205 (99%)	1171 (98%)	19 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	A	206/206 (100%)	202 (98%)	4 (2%)	57	45
1	B	207/206 (100%)	204 (99%)	3 (1%)	67	58
1	C	207/206 (100%)	204 (99%)	3 (1%)	67	58
1	D	207/206 (100%)	206 (100%)	1 (0%)	88	88
1	E	206/206 (100%)	200 (97%)	6 (3%)	42	28
All	All	1033/1030 (100%)	1016 (98%)	17 (2%)	65	52

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	37	VAL
1	A	127	GLU
1	A	211[A]	PHE
1	A	211[B]	PHE
1	B	28	LEU
1	B	211[A]	PHE
1	B	211[B]	PHE
1	C	75	THR
1	C	127	GLU
1	C	150	GLN
1	D	41	LYS
1	E	31	GLU
1	E	37	VAL
1	E	39	GLU
1	E	41	LYS
1	E	127	GLU
1	E	227	SER

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](#)

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](#)

41 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	CYN	E	242	-	0,1,1	-	-	-		
5	GOL	B	246	-	5,5,5	0.59	0	5,5,5	1.50	1 (20%)
3	PO4	B	243	-	4,4,4	0.82	0	6,6,6	1.13	1 (16%)
3	PO4	D	241	-	4,4,4	0.90	0	6,6,6	0.59	0
2	HEM	E	239	1	41,50,50	1.87	7 (17%)	45,82,82	1.64	10 (22%)
3	PO4	A	243	-	4,4,4	0.84	0	6,6,6	0.53	0
3	PO4	A	240	-	4,4,4	0.68	0	6,6,6	1.10	0
5	GOL	D	246	-	5,5,5	0.57	0	5,5,5	0.27	0
5	GOL	B	248	-	5,5,5	0.44	0	5,5,5	0.15	0
3	PO4	E	240	-	4,4,4	0.56	0	6,6,6	1.23	0
5	GOL	C	246	-	5,5,5	0.65	0	5,5,5	0.73	0
4	CYN	B	244	-	0,1,1	-	-	-		
4	CYN	C	243	-	0,1,1	-	-	-		
5	GOL	B	245	-	5,5,5	0.37	0	5,5,5	1.03	0
3	PO4	A	244	-	4,4,4	0.87	0	6,6,6	1.04	0
4	CYN	D	244	-	0,1,1	-	-	-		
3	PO4	A	242	-	4,4,4	0.94	0	6,6,6	0.55	0
5	GOL	C	244	-	5,5,5	0.43	0	5,5,5	0.25	0
5	GOL	B	247	-	5,5,5	0.29	0	5,5,5	0.58	0
2	HEM	A	239	1	41,50,50	1.84	7 (17%)	45,82,82	1.29	5 (11%)
5	GOL	A	248	-	5,5,5	0.30	0	5,5,5	1.00	1 (20%)
3	PO4	D	242	-	4,4,4	1.26	0	6,6,6	1.13	0
3	PO4	B	240	-	4,4,4	0.94	0	6,6,6	0.57	0
3	PO4	A	241	-	4,4,4	0.91	0	6,6,6	0.55	0
5	GOL	C	245	-	5,5,5	0.35	0	5,5,5	0.27	0
2	HEM	D	239	1	41,50,50	1.73	5 (12%)	45,82,82	1.43	4 (8%)
2	HEM	B	239	1	41,50,50	1.88	9 (21%)	45,82,82	1.67	7 (15%)
5	GOL	A	247	-	5,5,5	0.51	0	5,5,5	0.29	0
4	CYN	A	245	-	0,1,1	-	-	-		
5	GOL	E	243	-	5,5,5	0.40	0	5,5,5	0.29	0
3	PO4	C	241	-	4,4,4	0.75	0	6,6,6	0.85	0
3	PO4	D	243	-	4,4,4	0.96	0	6,6,6	0.30	0
3	PO4	E	241	-	4,4,4	0.89	0	6,6,6	0.47	0
5	GOL	A	246	-	5,5,5	0.48	0	5,5,5	0.36	0
3	PO4	B	242	-	4,4,4	1.19	0	6,6,6	0.56	0
2	HEM	C	239	1	41,50,50	1.69	8 (19%)	45,82,82	1.63	10 (22%)
3	PO4	C	240	-	4,4,4	0.80	0	6,6,6	0.76	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PO4	D	240	-	4,4,4	1.10	0	6,6,6	1.40	2 (33%)
3	PO4	B	241	-	4,4,4	0.88	0	6,6,6	0.52	0
5	GOL	D	245	-	5,5,5	0.40	0	5,5,5	0.19	0
3	PO4	C	242	-	4,4,4	1.29	0	6,6,6	1.05	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	GOL	B	246	-	-	2/4/4/4	-
5	GOL	A	246	-	-	2/4/4/4	-
5	GOL	B	248	-	-	2/4/4/4	-
5	GOL	D	246	-	-	2/4/4/4	-
5	GOL	C	246	-	-	4/4/4/4	-
5	GOL	B	245	-	-	2/4/4/4	-
5	GOL	A	247	-	-	2/4/4/4	-
2	HEM	C	239	1	-	3/12/54/54	-
5	GOL	B	247	-	-	4/4/4/4	-
2	HEM	E	239	1	-	1/12/54/54	-
5	GOL	C	245	-	-	2/4/4/4	-
5	GOL	E	243	-	-	2/4/4/4	-
5	GOL	D	245	-	-	0/4/4/4	-
5	GOL	C	244	-	-	2/4/4/4	-
2	HEM	D	239	1	-	4/12/54/54	-
2	HEM	A	239	1	-	4/12/54/54	-
2	HEM	B	239	1	-	4/12/54/54	-
5	GOL	A	248	-	-	2/4/4/4	-

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	239	HEM	C3D-C2D	6.79	1.51	1.36
2	B	239	HEM	C3D-C2D	6.59	1.50	1.36
2	E	239	HEM	C3D-C2D	6.48	1.50	1.36
2	C	239	HEM	C3D-C2D	6.46	1.50	1.36
2	D	239	HEM	C3D-C2D	6.41	1.50	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	239	HEM	C3C-C2C	-4.82	1.33	1.40
2	A	239	HEM	C3C-C2C	-4.50	1.34	1.40
2	D	239	HEM	C3C-C2C	-4.26	1.34	1.40
2	B	239	HEM	C3C-C2C	-3.97	1.34	1.40
2	B	239	HEM	C3C-CAC	3.64	1.55	1.47
2	A	239	HEM	CAB-C3B	3.26	1.56	1.47
2	E	239	HEM	C3C-CAC	3.24	1.54	1.47
2	C	239	HEM	C3C-C2C	-3.23	1.35	1.40
2	D	239	HEM	C3C-CAC	3.13	1.54	1.47
2	B	239	HEM	CMD-C2D	3.08	1.57	1.50
2	D	239	HEM	CAB-C3B	3.00	1.55	1.47
2	A	239	HEM	C3C-CAC	2.90	1.53	1.47
2	E	239	HEM	CAB-C3B	2.87	1.55	1.47
2	B	239	HEM	CAB-C3B	2.62	1.54	1.47
2	C	239	HEM	CMB-C2B	2.62	1.56	1.50
2	D	239	HEM	CMB-C2B	2.57	1.56	1.50
2	B	239	HEM	CMB-C2B	2.50	1.56	1.50
2	C	239	HEM	CMD-C2D	2.41	1.55	1.50
2	E	239	HEM	CMD-C2D	2.31	1.55	1.50
2	A	239	HEM	CMD-C2D	2.28	1.55	1.50
2	C	239	HEM	CAB-C3B	2.27	1.53	1.47
2	E	239	HEM	FE-ND	2.27	2.08	1.96
2	B	239	HEM	FE-ND	2.24	2.07	1.96
2	C	239	HEM	CMA-C3A	2.18	1.56	1.51
2	C	239	HEM	C3C-CAC	2.18	1.52	1.47
2	A	239	HEM	FE-ND	2.13	2.07	1.96
2	B	239	HEM	CMA-C3A	2.11	1.56	1.51
2	E	239	HEM	CMB-C2B	2.10	1.55	1.50
2	A	239	HEM	CMA-C3A	2.08	1.56	1.51
2	B	239	HEM	C4D-ND	-2.07	1.36	1.40
2	C	239	HEM	C3B-C2B	-2.06	1.33	1.37

All (41) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	239	HEM	C4D-ND-C1D	5.16	110.41	105.07
2	B	239	HEM	C4C-CHD-C1D	4.52	128.53	122.56
2	E	239	HEM	C4D-ND-C1D	3.93	109.13	105.07
2	A	239	HEM	C4D-ND-C1D	3.78	108.98	105.07
2	E	239	HEM	C4C-CHD-C1D	3.69	127.42	122.56
2	D	239	HEM	CAD-CBD-CGD	-3.63	105.79	113.60
2	E	239	HEM	C4A-C3A-C2A	3.57	109.48	107.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	239	HEM	CMD-C2D-C1D	3.55	130.45	125.04
2	C	239	HEM	CMC-C2C-C3C	3.51	131.24	124.68
2	C	239	HEM	CMD-C2D-C1D	3.34	130.13	125.04
2	D	239	HEM	CMD-C2D-C1D	3.16	129.85	125.04
2	B	239	HEM	CMD-C2D-C1D	3.12	129.78	125.04
2	C	239	HEM	C4D-ND-C1D	3.06	108.24	105.07
2	E	239	HEM	C2C-C3C-C4C	3.04	109.02	106.90
2	D	239	HEM	C4D-ND-C1D	2.96	108.13	105.07
2	C	239	HEM	C4C-CHD-C1D	2.93	126.42	122.56
2	A	239	HEM	CAD-CBD-CGD	-2.88	107.40	113.60
2	B	239	HEM	C1D-C2D-C3D	-2.87	103.94	106.96
2	C	239	HEM	C2C-C3C-C4C	2.83	108.88	106.90
2	E	239	HEM	CAD-CBD-CGD	-2.77	107.64	113.60
2	B	239	HEM	C2C-C3C-C4C	2.68	108.77	106.90
2	C	239	HEM	CAD-CBD-CGD	-2.63	107.95	113.60
2	E	239	HEM	C1D-C2D-C3D	-2.62	104.20	106.96
2	E	239	HEM	C3B-C2B-C1B	2.57	108.39	106.49
2	B	239	HEM	CMC-C2C-C3C	2.55	129.44	124.68
2	C	239	HEM	C1D-C2D-C3D	-2.53	104.29	106.96
2	C	239	HEM	CHD-C1D-ND	2.48	127.13	124.43
2	E	239	HEM	C1B-NB-C4B	2.45	107.60	105.07
5	B	246	GOL	O1-C1-C2	2.38	121.59	110.20
2	A	239	HEM	C4B-CHC-C1C	2.36	125.67	122.56
3	D	240	PO4	O4-P-O2	2.28	115.30	107.97
2	A	239	HEM	C3B-C2B-C1B	2.26	108.16	106.49
2	D	239	HEM	CAD-C3D-C4D	2.18	128.48	124.66
2	A	239	HEM	C1D-C2D-C3D	-2.17	104.68	106.96
2	E	239	HEM	CMA-C3A-C4A	-2.11	125.23	128.46
3	D	240	PO4	O4-P-O1	-2.09	103.23	110.89
2	C	239	HEM	CBD-CAD-C3D	-2.04	106.96	112.63
3	B	243	PO4	O3-P-O2	2.03	114.47	107.97
2	C	239	HEM	C4B-C3B-C2B	2.02	108.72	107.11
2	B	239	HEM	C4A-C3A-C2A	2.01	108.40	107.00
5	A	248	GOL	O3-C3-C2	2.01	119.82	110.20

There are no chirality outliers.

All (44) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	246	GOL	O1-C1-C2-C3
5	A	248	GOL	C1-C2-C3-O3
5	B	245	GOL	C1-C2-C3-O3

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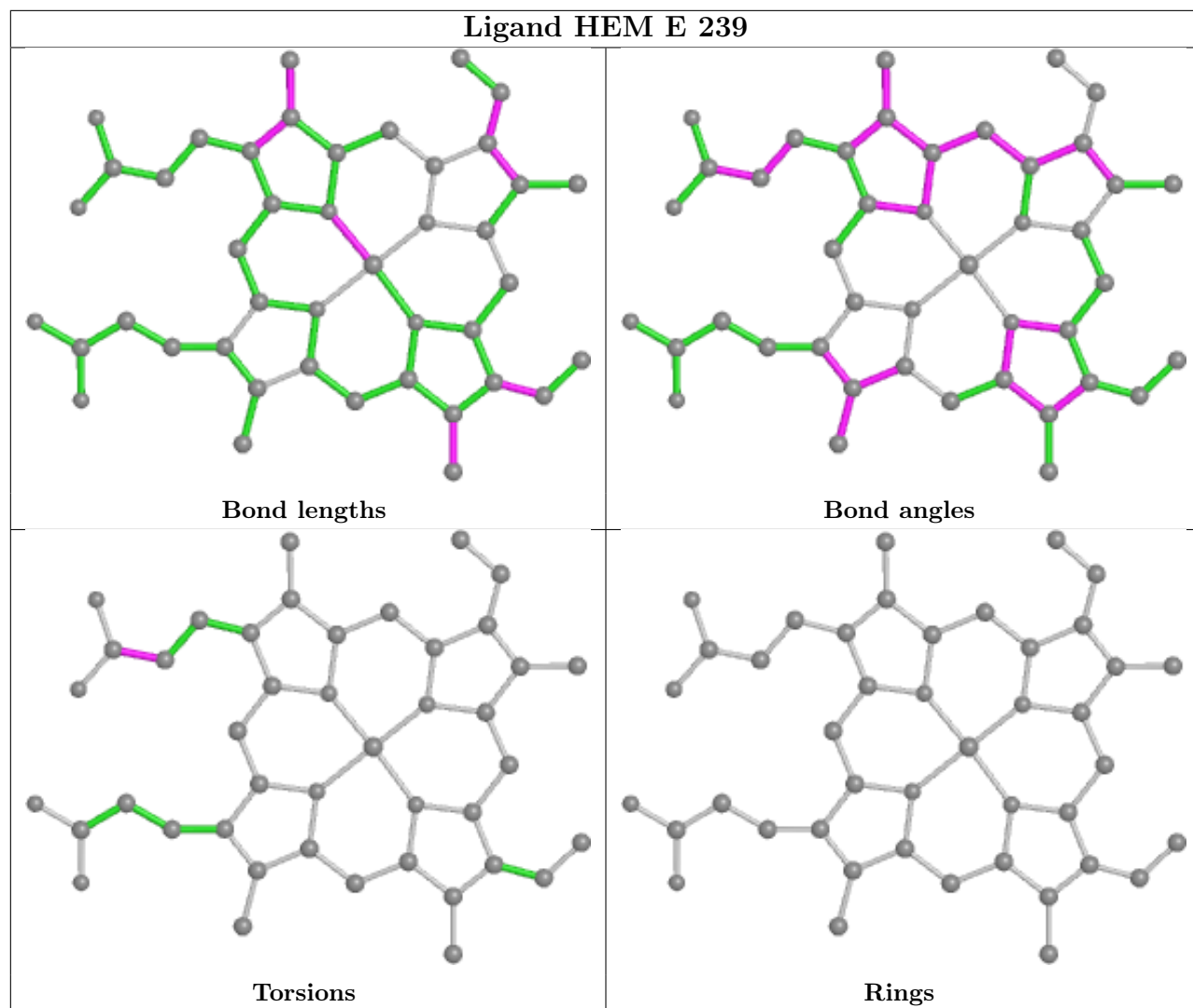
Mol	Chain	Res	Type	Atoms
5	B	245	GOL	O2-C2-C3-O3
5	B	246	GOL	O1-C1-C2-C3
5	B	247	GOL	O1-C1-C2-C3
5	B	247	GOL	C1-C2-C3-O3
5	B	248	GOL	O1-C1-C2-C3
5	C	244	GOL	O1-C1-C2-C3
5	C	245	GOL	O1-C1-C2-O2
5	C	245	GOL	O1-C1-C2-C3
5	C	246	GOL	O1-C1-C2-C3
5	D	246	GOL	O1-C1-C2-C3
5	E	243	GOL	O1-C1-C2-C3
5	B	246	GOL	O1-C1-C2-O2
5	B	247	GOL	O2-C2-C3-O3
5	C	246	GOL	C1-C2-C3-O3
5	A	246	GOL	O1-C1-C2-O2
5	A	248	GOL	O2-C2-C3-O3
5	B	248	GOL	O1-C1-C2-O2
5	C	246	GOL	O1-C1-C2-O2
5	D	246	GOL	O1-C1-C2-O2
5	E	243	GOL	O1-C1-C2-O2
5	B	247	GOL	O1-C1-C2-O2
5	C	244	GOL	O1-C1-C2-O2
5	C	246	GOL	O2-C2-C3-O3
5	A	247	GOL	O1-C1-C2-O2
2	C	239	HEM	CAD-CBD-CGD-O1D
2	C	239	HEM	CAD-CBD-CGD-O2D
5	A	247	GOL	O1-C1-C2-C3
2	B	239	HEM	CAA-CBA-CGA-O2A
2	D	239	HEM	CAD-CBD-CGD-O2D
2	A	239	HEM	CAA-CBA-CGA-O2A
2	A	239	HEM	CAD-CBD-CGD-O2D
2	A	239	HEM	CAD-CBD-CGD-O1D
2	B	239	HEM	CAA-CBA-CGA-O1A
2	A	239	HEM	CAA-CBA-CGA-O1A
2	D	239	HEM	CAA-CBA-CGA-O2A
2	E	239	HEM	CAD-CBD-CGD-O2D
2	B	239	HEM	CAD-CBD-CGD-O2D
2	C	239	HEM	CAA-CBA-CGA-O2A
2	D	239	HEM	CAD-CBD-CGD-O1D
2	D	239	HEM	CAA-CBA-CGA-O1A
2	B	239	HEM	CAD-CBD-CGD-O1D

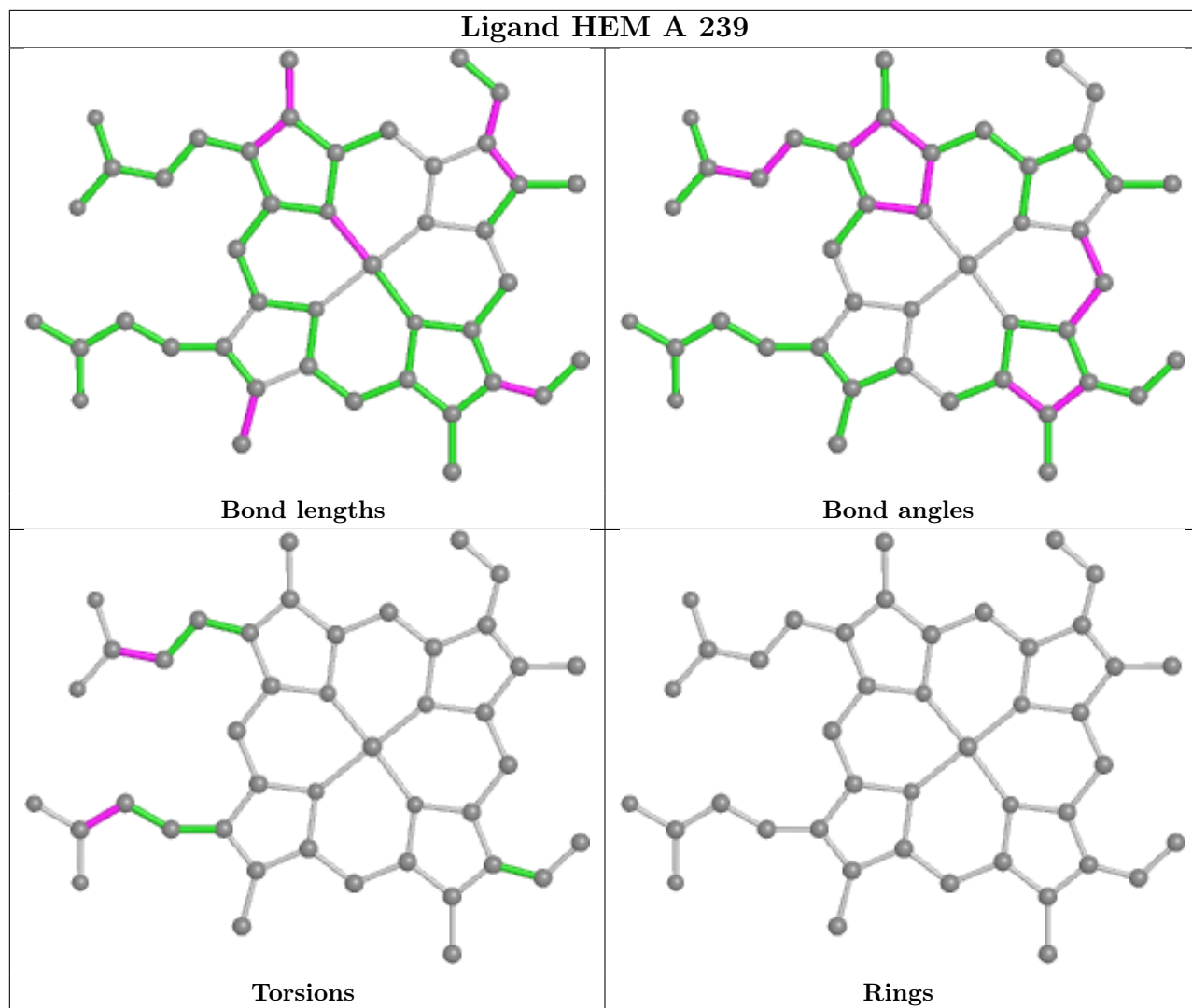
There are no ring outliers.

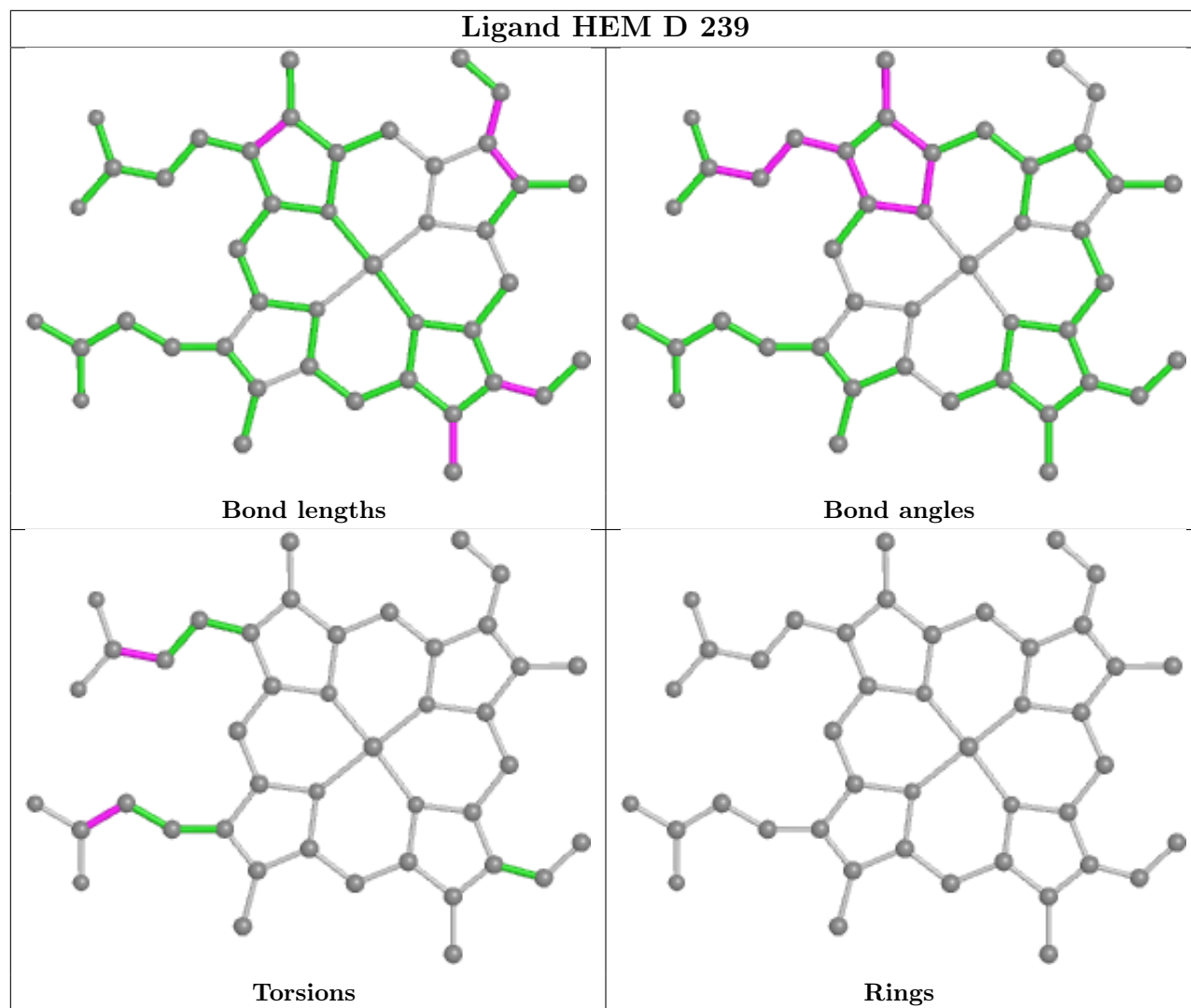
8 monomers are involved in 11 short contacts:

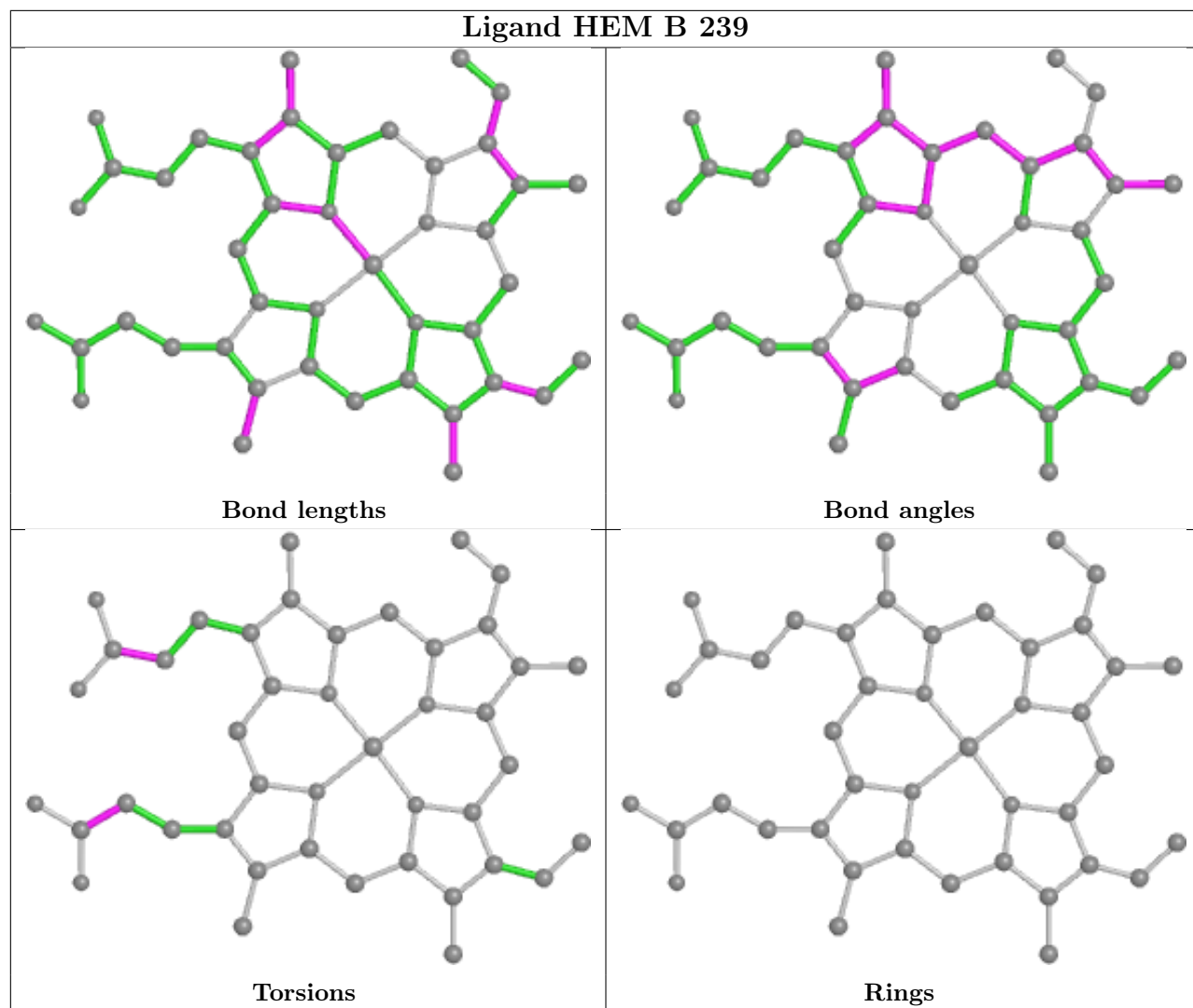
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	246	GOL	1	0
2	E	239	HEM	1	0
5	C	246	GOL	1	0
5	B	245	GOL	2	0
5	A	248	GOL	2	0
2	B	239	HEM	1	0
5	A	246	GOL	1	0
2	C	239	HEM	2	0

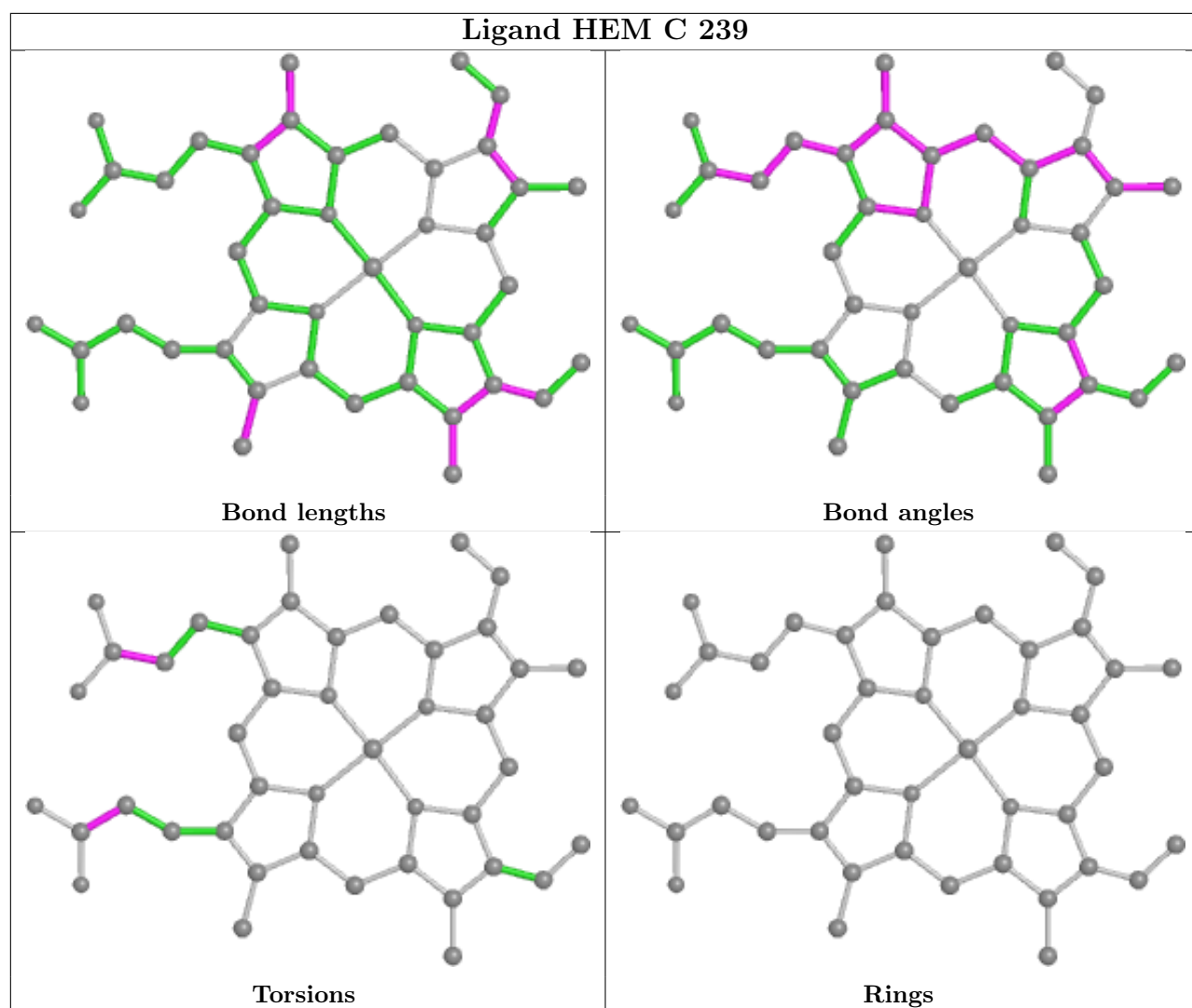
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

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, 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	A	238/241 (98%)	0.31	12 (5%) 28 36	22, 32, 51, 61	0
1	B	239/241 (99%)	0.61	31 (12%) 3 5	21, 32, 72, 85	0
1	C	239/241 (99%)	0.65	30 (12%) 3 5	21, 34, 58, 77	0
1	D	239/241 (99%)	0.80	38 (15%) 1 2	24, 41, 70, 89	1 (0%)
1	E	239/241 (99%)	0.87	35 (14%) 2 3	26, 41, 75, 92	0
All	All	1194/1205 (99%)	0.65	146 (12%) 4 6	21, 36, 68, 92	1 (0%)

All (146) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	128	SER	10.2
1	B	1	ALA	9.8
1	E	1	ALA	8.4
1	D	28	LEU	8.3
1	E	0	MET	8.1
1	D	1	ALA	7.1
1	A	1	ALA	7.0
1	D	0	MET	6.6
1	A	128	SER	6.6
1	B	0	MET	6.4
1	D	128	SER	5.5
1	C	0	MET	5.0
1	B	30	GLY	4.9
1	C	128	SER	4.9
1	E	211[A]	PHE	4.8
1	C	1	ALA	4.7
1	E	32	SER	4.5
1	D	27	ASP	4.3
1	B	211[A]	PHE	4.3
1	D	29	PRO	4.3

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Mol	Chain	Res	Type	RSRZ
1	A	211[A]	PHE	4.2
1	C	236	PHE	4.2
1	C	28	LEU	4.0
1	D	32	SER	4.0
1	D	237	ALA	4.0
1	D	49	GLY	3.9
1	E	28	LEU	3.9
1	D	129	GLY	3.9
1	E	2	ASP	3.8
1	D	31	GLU	3.8
1	E	236	PHE	3.7
1	C	211[A]	PHE	3.6
1	B	35	ILE	3.6
1	B	34	VAL	3.6
1	B	130	SER	3.6
1	E	49	GLY	3.4
1	D	211[A]	PHE	3.4
1	E	31	GLU	3.4
1	D	169	LYS	3.3
1	C	2	ASP	3.3
1	E	127	GLU	3.3
1	E	29	PRO	3.2
1	D	223	LEU	3.2
1	E	90	ARG	3.2
1	D	24	ASP	3.2
1	D	236	PHE	3.2
1	D	2	ASP	3.1
1	C	27	ASP	3.1
1	C	45	GLU	3.1
1	B	135	ILE	3.1
1	E	48	SER	3.1
1	E	194	ARG	3.1
1	C	113	GLY	3.1
1	B	128	SER	3.0
1	D	135	ILE	3.0
1	E	4	GLU	3.0
1	E	130	SER	3.0
1	D	116	GLU	2.9
1	C	181	LEU	2.9
1	D	26	TRP	2.9
1	B	238	GLN	2.9
1	B	31	GLU	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	2	ASP	2.8
1	B	2	ASP	2.8
1	C	234	GLU	2.8
1	C	16	PHE	2.8
1	D	120	THR	2.8
1	D	127	GLU	2.8
1	B	194	ARG	2.8
1	D	233	LEU	2.8
1	E	175	LEU	2.8
1	E	39	GLU	2.8
1	A	130	SER	2.8
1	D	123	GLN	2.8
1	B	32	SER	2.7
1	C	187	ILE	2.7
1	E	135	ILE	2.7
1	C	101	LEU	2.7
1	B	4	GLU	2.7
1	E	129	GLY	2.7
1	D	5	LYS	2.7
1	A	123	GLN	2.7
1	E	24	ASP	2.6
1	E	27	ASP	2.6
1	E	187	ILE	2.6
1	B	223	LEU	2.6
1	E	188	THR	2.6
1	C	194	ARG	2.6
1	B	61	LEU	2.6
1	B	137	ILE	2.6
1	D	230	ASP	2.5
1	B	49	GLY	2.5
1	A	169	LYS	2.5
1	C	100	LEU	2.5
1	A	135	ILE	2.4
1	E	5	LYS	2.4
1	B	38	ALA	2.4
1	E	237	ALA	2.4
1	B	222	LEU	2.4
1	D	115	PRO	2.4
1	D	3	ARG	2.4
1	C	123	GLN	2.4
1	D	117	SER	2.4
1	B	28	LEU	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	234	GLU	2.4
1	C	17	ALA	2.4
1	E	23	HIS	2.4
1	E	176	TYR	2.4
1	D	189	TYR	2.3
1	A	116	GLU	2.3
1	C	112	ALA	2.3
1	D	190	PHE	2.3
1	B	136	VAL	2.3
1	D	202	VAL	2.3
1	B	181	LEU	2.3
1	B	27	ASP	2.3
1	B	90	ARG	2.2
1	E	45	GLU	2.2
1	E	46	GLN	2.2
1	C	135	ILE	2.2
1	B	237	ALA	2.2
1	A	129	GLY	2.2
1	A	215	ARG	2.2
1	E	124	VAL	2.2
1	C	5	LYS	2.2
1	D	61	LEU	2.2
1	E	181	LEU	2.2
1	D	112	ALA	2.2
1	E	215	ARG	2.2
1	D	187	ILE	2.1
1	D	130	SER	2.1
1	A	202	VAL	2.1
1	C	49	GLY	2.1
1	C	48	SER	2.1
1	C	189	TYR	2.1
1	B	129	GLY	2.1
1	B	3	ARG	2.1
1	C	102	HIS	2.1
1	E	117	SER	2.0
1	C	131	ARG	2.0
1	C	232	ILE	2.0
1	C	130	SER	2.0
1	C	136	VAL	2.0
1	D	4	GLU	2.0
1	B	26	TRP	2.0
1	D	94	HIS	2.0

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 [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, 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
5	GOL	C	245	6/6	0.59	0.25	56,57,58,60	0
5	GOL	D	246	6/6	0.62	0.23	51,54,54,55	0
5	GOL	B	246	6/6	0.65	0.22	41,44,45,46	0
5	GOL	A	248	6/6	0.73	0.20	54,57,59,61	0
5	GOL	A	246	6/6	0.73	0.25	59,61,62,64	0
5	GOL	D	245	6/6	0.75	0.25	63,65,66,67	0
5	GOL	C	244	6/6	0.80	0.18	62,63,64,65	0
5	GOL	B	247	6/6	0.81	0.25	54,55,55,56	0
5	GOL	B	245	6/6	0.83	0.19	43,48,51,53	0
5	GOL	E	243	6/6	0.85	0.22	64,65,66,67	0
3	PO4	B	241	5/5	0.86	0.28	80,80,80,81	0
5	GOL	C	246	6/6	0.89	0.25	33,40,42,46	0
5	GOL	B	248	6/6	0.89	0.14	67,67,68,69	0
4	CYN	D	244	2/2	0.89	0.24	31,31,31,34	0
3	PO4	C	240	5/5	0.89	0.26	74,75,75,75	0
3	PO4	A	243	5/5	0.91	0.19	80,80,81,82	0
3	PO4	A	242	5/5	0.91	0.29	75,75,77,77	0
3	PO4	D	241	5/5	0.93	0.32	78,79,79,79	0
5	GOL	A	247	6/6	0.94	0.20	56,57,57,58	0
3	PO4	D	240	5/5	0.94	0.11	38,40,41,41	0
3	PO4	B	240	5/5	0.94	0.28	86,87,87,87	0
4	CYN	A	245	2/2	0.94	0.16	25,25,25,29	0
3	PO4	A	241	5/5	0.94	0.27	77,78,78,78	0
3	PO4	A	244	5/5	0.94	0.10	45,46,47,47	0
3	PO4	B	242	5/5	0.95	0.09	40,42,44,44	0
4	CYN	E	242	2/2	0.95	0.14	28,28,28,30	0
4	CYN	C	243	2/2	0.95	0.15	25,25,25,27	0

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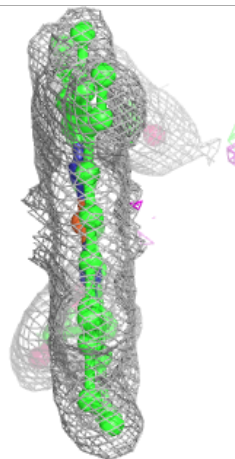
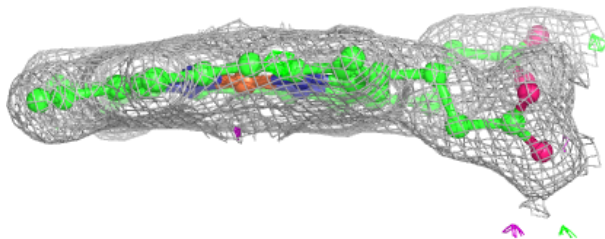
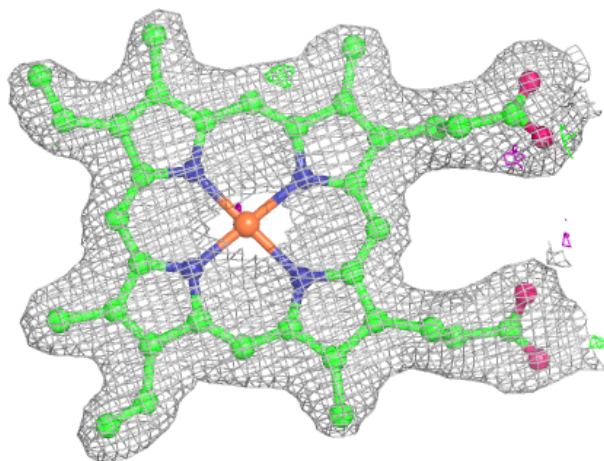
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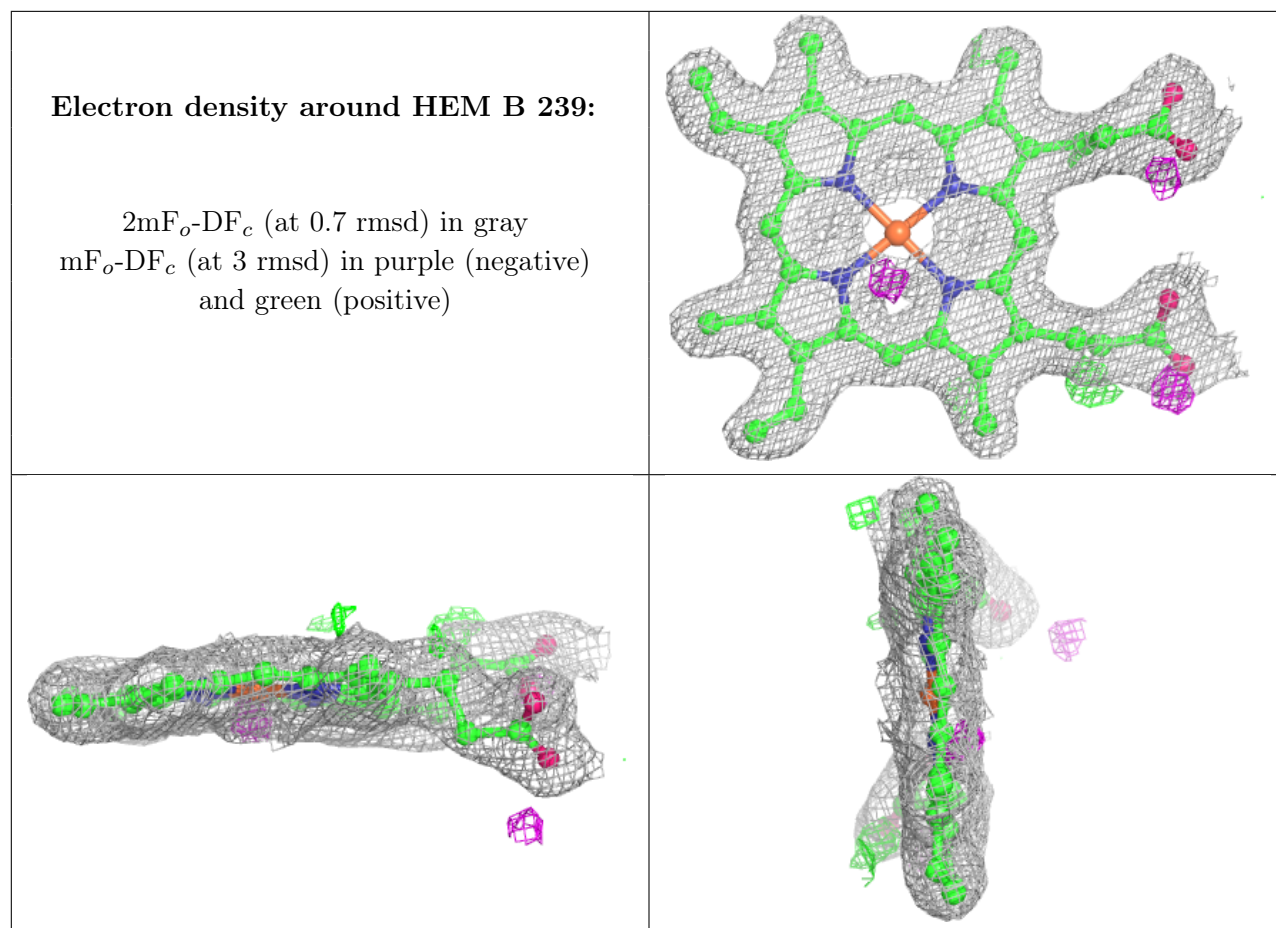
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	PO4	E	241	5/5	0.96	0.14	81,82,82,82	0
3	PO4	C	241	5/5	0.96	0.09	37,38,41,41	0
3	PO4	D	243	5/5	0.96	0.07	37,40,41,42	0
2	HEM	E	239	43/43	0.97	0.15	20,26,31,33	0
3	PO4	C	242	5/5	0.97	0.09	33,36,39,39	0
2	HEM	B	239	43/43	0.97	0.12	17,21,26,27	0
4	CYN	B	244	2/2	0.97	0.16	20,20,20,27	0
2	HEM	C	239	43/43	0.97	0.11	19,22,29,32	0
3	PO4	E	240	5/5	0.98	0.08	37,37,39,40	0
2	HEM	A	239	43/43	0.98	0.12	21,25,29,31	0
2	HEM	D	239	43/43	0.98	0.13	23,27,33,34	0
3	PO4	B	243	5/5	0.98	0.09	32,33,34,36	0
3	PO4	D	242	5/5	0.99	0.05	35,36,37,38	0
3	PO4	A	240	5/5	0.99	0.06	29,30,32,33	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 HEM E 239:

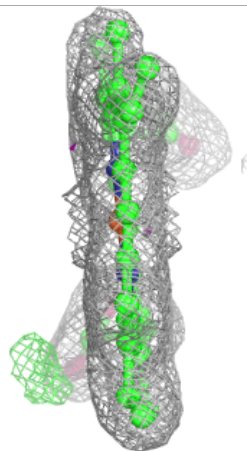
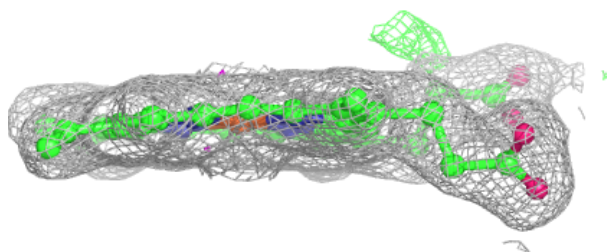
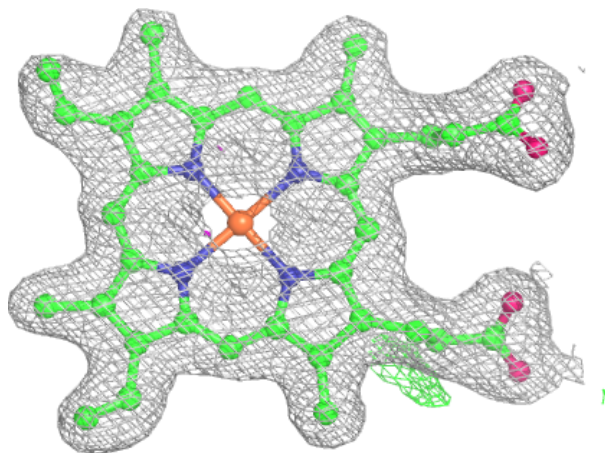
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

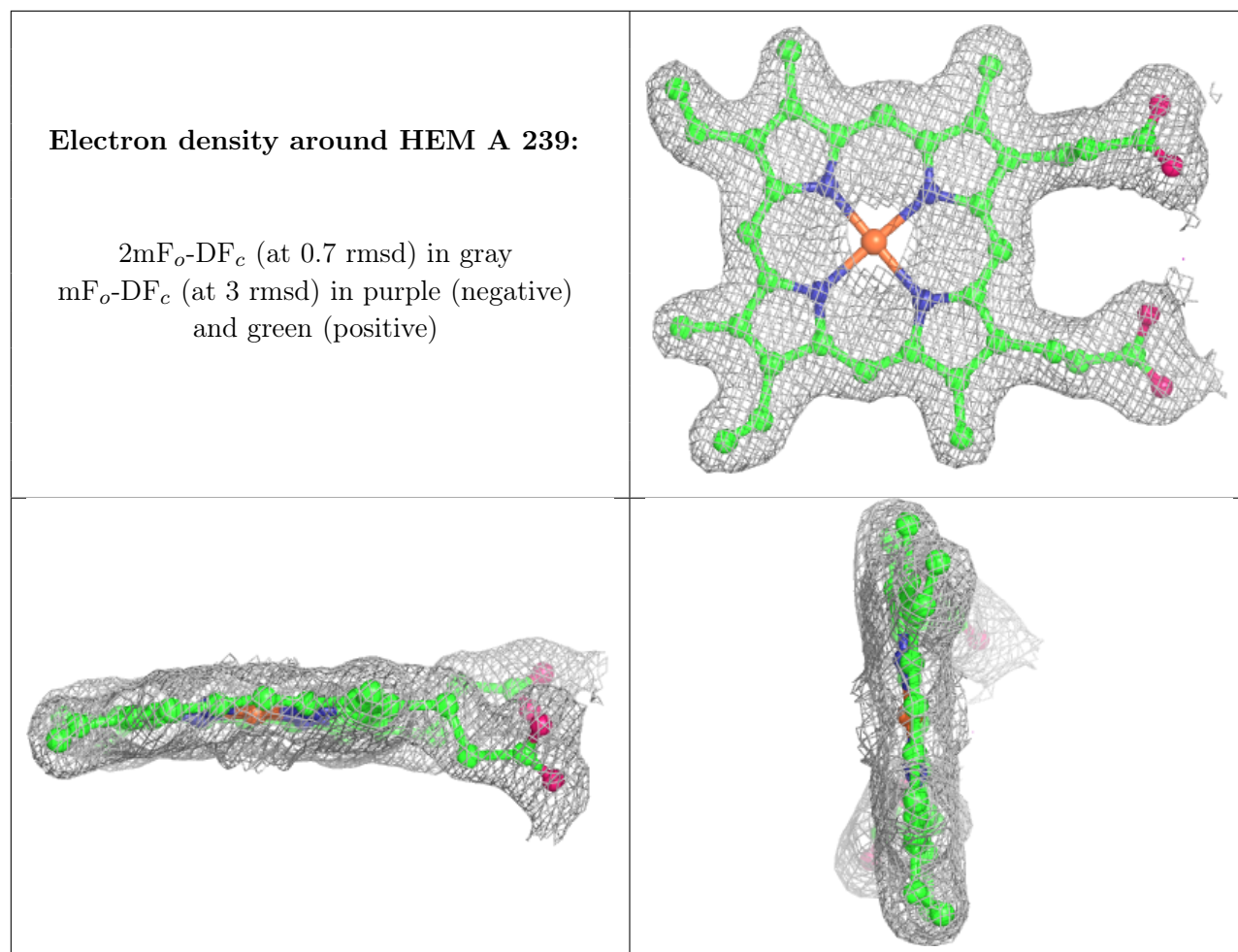


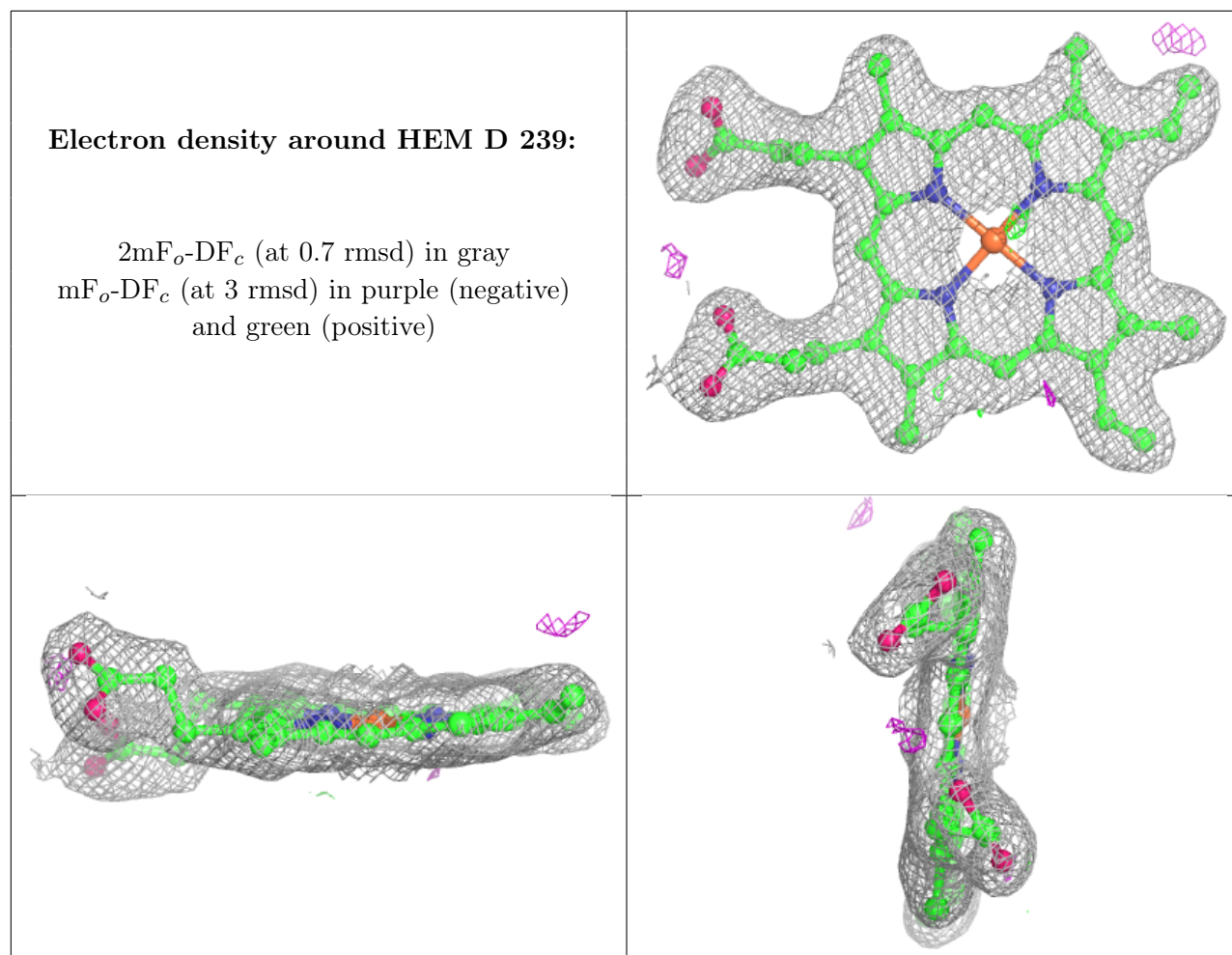


Electron density around HEM C 239:

$2mF_o-DF_c$ (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.