



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 18, 2024 – 04:37 PM JST

PDB ID : 8JS6
Title : Dimeric PAS domains of oxygen sensor FixL in complex with cyanide-bound ferric heme
Authors : Kamaya, M.; Koteishi, H.; Sawai, H.; Sugimoto, H.; Shiro, Y.
Deposited on : 2023-06-19
Resolution : 2.70 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.37.1
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) : 2.37.1

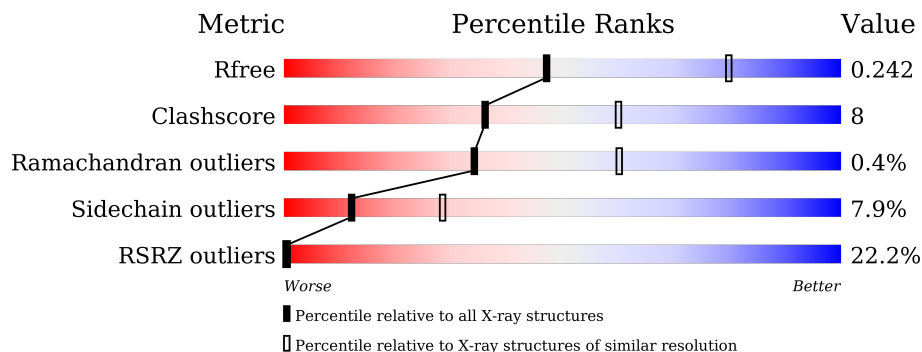
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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.



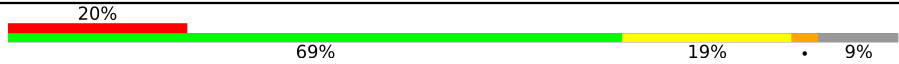
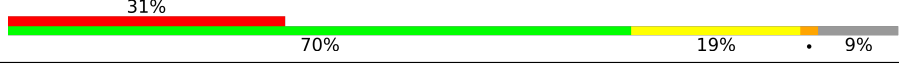
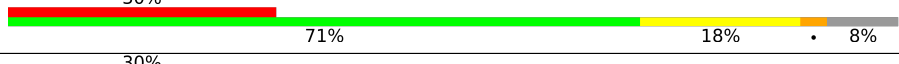

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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	273	<div style="display: flex; align-items: center;"> <div style="width: 9%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 7%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>
1	B	273	<div style="display: flex; align-items: center;"> <div style="width: 20%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 7%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>
1	C	273	<div style="display: flex; align-items: center;"> <div style="width: 15%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 69%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>
1	D	273	<div style="display: flex; align-items: center;"> <div style="width: 7%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 7%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>
1	E	273	<div style="display: flex; align-items: center;"> <div style="width: 21%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 73%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>
1	F	273	<div style="display: flex; align-items: center;"> <div style="width: 22%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 73%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 8%; height: 10px; background-color: grey;"></div> </div>

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	G	273	
1	H	273	
1	I	273	
1	J	273	

2 Entry composition [i](#)

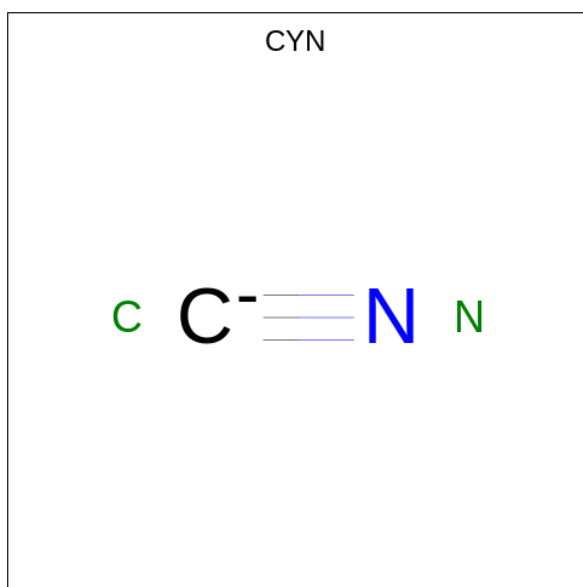
There are 5 unique types of molecules in this entry. The entry contains 20477 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Sensor protein FixL.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	253	Total 2021	C 1260	N 373	O 384	S 4	0	3	0
1	B	253	Total 1998	C 1245	N 365	O 384	S 4	0	0	0
1	C	251	Total 1983	C 1234	N 363	O 382	S 4	0	0	0
1	D	253	Total 2005	C 1250	N 367	O 384	S 4	0	1	0
1	E	251	Total 1981	C 1234	N 363	O 380	S 4	0	0	0
1	F	251	Total 1981	C 1234	N 363	O 380	S 4	0	0	0
1	G	249	Total 1966	C 1223	N 361	O 378	S 4	0	0	0
1	H	249	Total 1972	C 1228	N 362	O 378	S 4	0	1	0
1	I	251	Total 1980	C 1234	N 363	O 379	S 4	0	0	0
1	J	251	Total 1987	C 1239	N 364	O 380	S 4	0	1	0

- 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
3	A	1	Total C N 2 1 1	0	0
3	B	1	Total C N 2 1 1	0	0
3	C	1	Total C N 2 1 1	0	0
3	D	1	Total C N 2 1 1	0	0
3	E	1	Total C N 2 1 1	0	0
3	F	1	Total C N 2 1 1	0	0
3	G	1	Total C N 2 1 1	0	0
3	H	1	Total C N 2 1 1	0	0
3	I	1	Total C N 2 1 1	0	0
3	J	1	Total C N 2 1 1	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 6 3 3	0	0
4	A	1	Total C O 6 3 3	0	0
4	B	1	Total C O 6 3 3	0	0
4	C	1	Total C O 6 3 3	0	0
4	D	1	Total C O 6 3 3	0	0
4	D	1	Total C O 6 3 3	0	0
4	E	1	Total C O 6 3 3	0	0
4	E	1	Total C O 6 3 3	0	0
4	F	1	Total C O 6 3 3	0	0
4	G	1	Total C O 6 3 3	0	0
4	G	1	Total C O 6 3 3	0	0
4	H	1	Total C O 6 3 3	0	0
4	I	1	Total C O 6 3 3	0	0
4	J	1	Total C O 6 3 3	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	J	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is water.

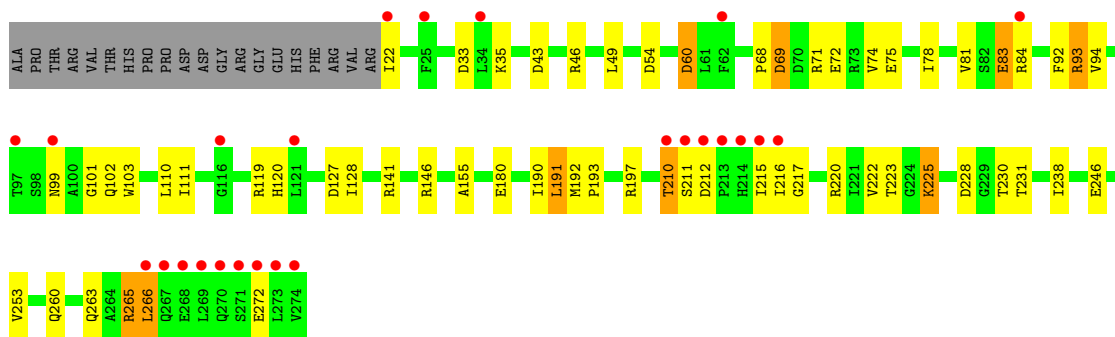
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	10	Total	O	0	0
			10	10		
5	B	8	Total	O	0	0
			8	8		
5	C	5	Total	O	0	0
			5	5		
5	D	16	Total	O	0	0
			16	16		
5	E	3	Total	O	0	0
			3	3		
5	F	7	Total	O	0	0
			7	7		
5	G	5	Total	O	0	0
			5	5		
5	H	3	Total	O	0	0
			3	3		
5	I	3	Total	O	0	0
			3	3		
5	J	3	Total	O	0	0
			3	3		

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.

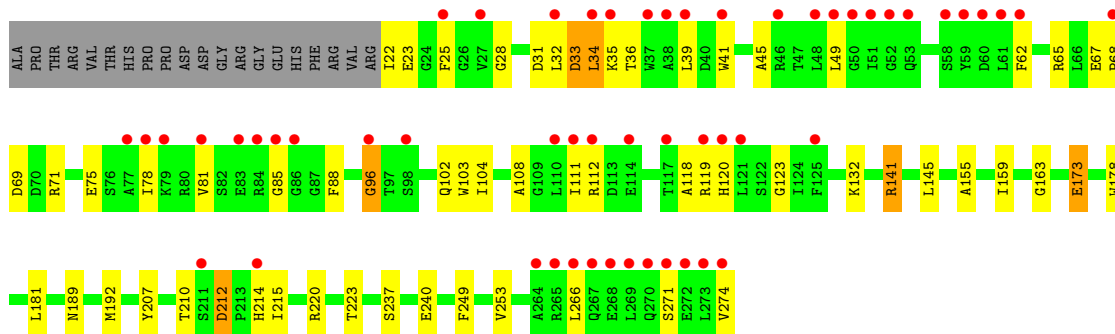
- Molecule 1: Sensor protein FixL

Chain A: 



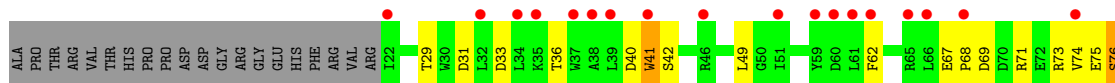
- Molecule 1: Sensor protein FixL

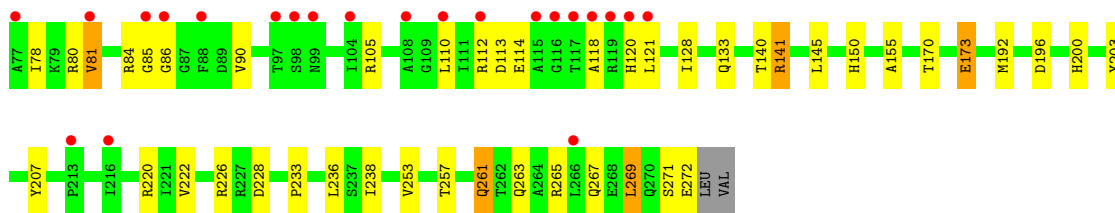
Chain B: 



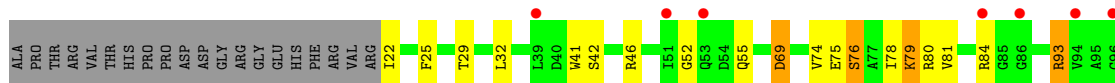
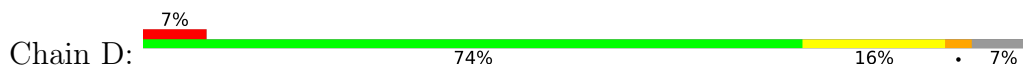
- Molecule 1: Sensor protein FixL

Chain C: 

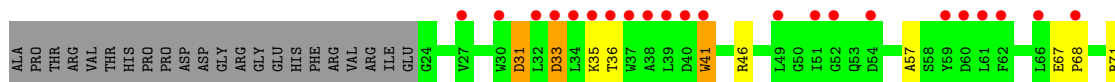
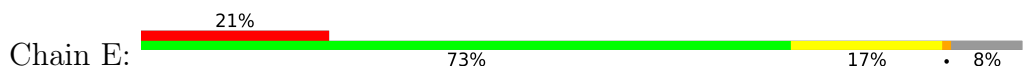




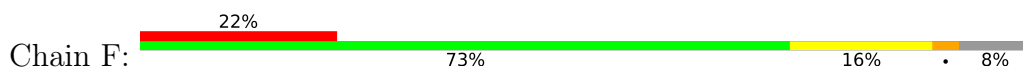
• Molecule 1: Sensor protein FixL



• Molecule 1: Sensor protein FixL

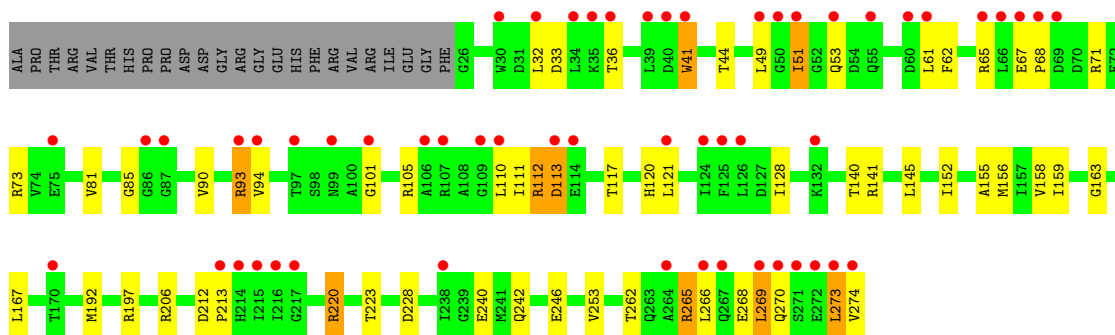


• Molecule 1: Sensor protein FixL

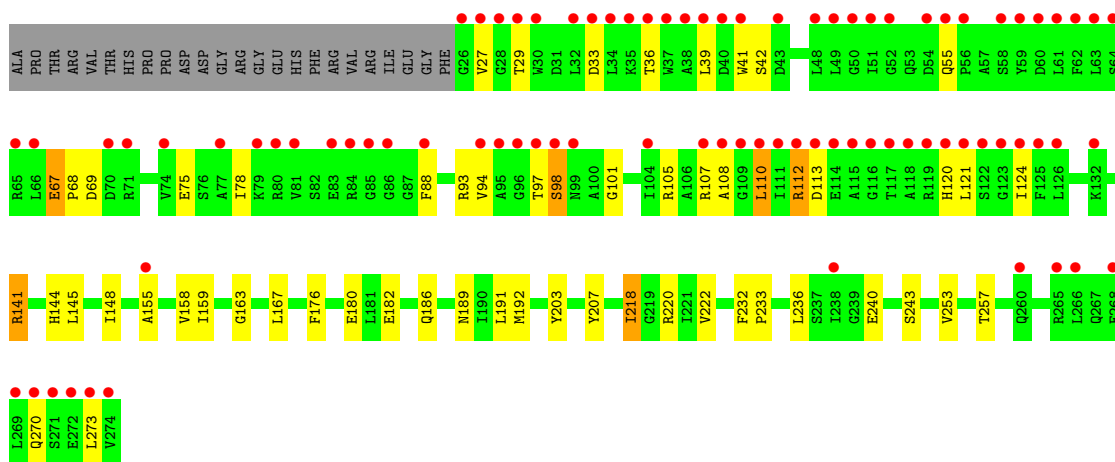


• Molecule 1: Sensor protein FixL

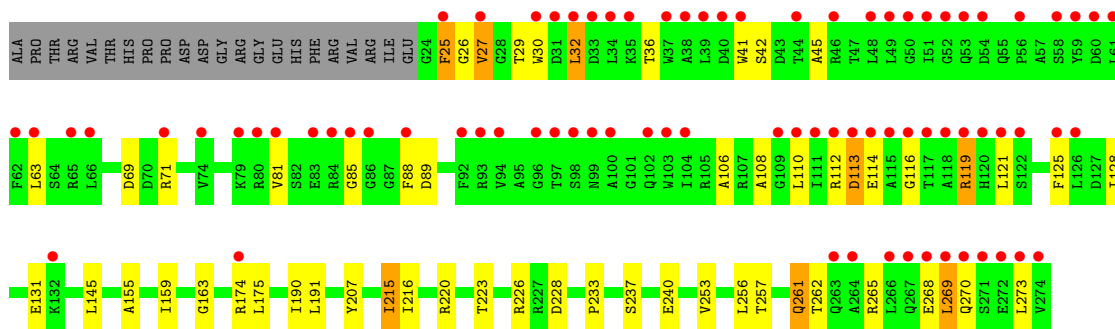




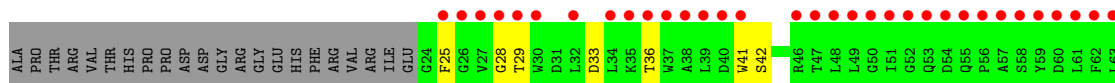
• Molecule 1: Sensor protein FixL

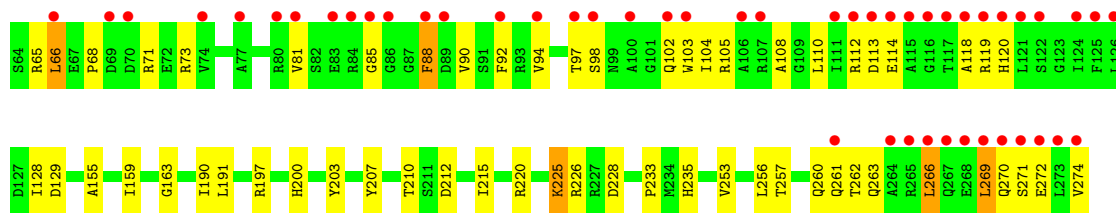


• Molecule 1: Sensor protein FixL



• Molecule 1: Sensor protein FixL





4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	187.83Å 198.73Å 266.32Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.68 – 2.70 49.68 – 2.70	Depositor EDS
% Data completeness (in resolution range)	100.0 (49.68-2.70) 94.4 (49.68-2.70)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.09 (at 2.69Å)	Xtrriage
Refinement program	PHENIX 1.20.1	Depositor
R, R_{free}	0.219 , 0.247 0.215 , 0.242	Depositor DCC
R_{free} test set	6822 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	74.9	Xtrriage
Anisotropy	0.296	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 82.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	20477	wwPDB-VP
Average B, all atoms (Å ²)	135.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.96% 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: 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	0.41	0/2070	0.68	0/2797
1	B	0.38	0/2037	0.65	0/2754
1	C	0.35	0/2022	0.64	0/2733
1	D	0.40	0/2048	0.68	0/2769
1	E	0.35	0/2020	0.67	0/2731
1	F	0.36	0/2020	0.65	0/2731
1	G	0.35	0/2004	0.63	0/2710
1	H	0.35	0/2013	0.67	0/2722
1	I	0.36	0/2019	0.66	0/2730
1	J	0.35	0/2029	0.66	0/2743
All	All	0.37	0/20282	0.66	0/27420

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	A	2021	0	1981	34	0
1	B	1998	0	1948	37	0
1	C	1983	0	1928	35	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	2005	0	1955	26	0
1	E	1981	0	1931	33	0
1	F	1981	0	1931	25	0
1	G	1966	0	1919	31	0
1	H	1972	0	1924	32	0
1	I	1980	0	1928	36	0
1	J	1987	0	1936	45	0
2	A	43	0	30	0	0
2	B	43	0	30	3	0
2	C	43	0	30	4	0
2	D	43	0	30	3	0
2	E	43	0	30	1	0
2	F	43	0	30	2	0
2	G	43	0	30	2	0
2	H	43	0	30	2	0
2	I	43	0	30	2	0
2	J	43	0	30	3	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
3	F	2	0	0	0	0
3	G	2	0	0	0	0
3	H	2	0	0	0	0
3	I	2	0	0	0	0
3	J	2	0	0	0	0
4	A	12	0	16	4	0
4	B	6	0	7	1	0
4	C	6	0	8	0	0
4	D	12	0	15	3	0
4	E	12	0	16	1	0
4	F	6	0	8	2	0
4	G	12	0	16	2	0
4	H	6	0	7	0	0
4	I	6	0	8	0	0
4	J	12	0	16	1	0
5	A	10	0	0	0	0
5	B	8	0	0	0	0
5	C	5	0	0	0	0
5	D	16	0	0	0	0
5	E	3	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	F	7	0	0	0	0
5	G	5	0	0	0	0
5	H	3	0	0	0	0
5	I	3	0	0	0	0
5	J	3	0	0	0	0
All	All	20477	0	19798	323	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 (323) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:THR:HG22	1:A:212:ASP:H	1.46	0.81
1:J:29:THR:HG22	1:J:42:SER:HB2	1.65	0.77
1:C:269:LEU:HG	1:D:269:LEU:HD13	1.69	0.74
1:D:69:ASP:N	1:D:69:ASP:OD1	2.20	0.73
1:D:233:PRO:HD2	1:D:257:THR:HG22	1.69	0.72
1:G:51:ILE:HG23	1:G:53:GLN:H	1.55	0.72
1:G:81:VAL:HA	1:G:85:GLY:HA3	1.72	0.71
1:G:93:ARG:HE	1:G:101:GLY:HA3	1.56	0.70
2:H:302:HEM:HBB2	2:H:302:HEM:HHC	1.74	0.69
1:B:34:LEU:HD12	1:B:35:LYS:HG3	1.74	0.69
1:D:218:ILE:HG22	1:H:218:ILE:HG13	1.73	0.69
1:J:155:ALA:HB3	1:J:253:VAL:HB	1.75	0.69
1:G:155:ALA:HB3	1:G:253:VAL:HB	1.75	0.69
1:B:141:ARG:NH1	4:B:301:GOL:O2	2.25	0.68
1:H:105:ARG:HE	1:H:107:ARG:HD2	1.56	0.68
1:C:112:ARG:HE	1:C:118:ALA:HB2	1.58	0.68
1:H:155:ALA:HB3	1:H:253:VAL:HB	1.75	0.68
1:E:155:ALA:HB3	1:E:253:VAL:HB	1.75	0.67
1:A:33:ASP:OD2	1:A:119:ARG:NH1	2.27	0.67
2:B:302:HEM:HHC	2:B:302:HEM:HBB2	1.78	0.66
1:B:81:VAL:HA	1:B:85:GLY:HA3	1.76	0.66
1:C:155:ALA:HB3	1:C:253:VAL:HB	1.78	0.66
1:C:81:VAL:HG11	1:C:121:LEU:HD13	1.78	0.65
1:F:66:LEU:HB2	1:F:71:ARG:HB3	1.77	0.65
1:J:73:ARG:HH11	1:J:90:VAL:HG23	1.62	0.64
2:E:601:HEM:HHC	2:E:601:HEM:HBB2	1.79	0.64
1:G:220:ARG:NH2	2:G:601:HEM:O2D	2.31	0.64
2:F:302:HEM:HBB2	2:F:302:HEM:HHC	1.80	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:601:HEM:HHC	2:G:601:HEM:HBB2	1.80	0.64
1:E:180:GLU:HG3	1:E:181:LEU:HD12	1.80	0.63
1:D:155:ALA:HB3	1:D:253:VAL:HB	1.79	0.63
2:C:601:HEM:HHC	2:C:601:HEM:HBB2	1.81	0.63
1:E:31:ASP:OD1	1:E:31:ASP:N	2.31	0.63
1:H:33:ASP:HB3	1:H:120:HIS:HB3	1.80	0.63
1:A:102:GLN:NE2	1:A:127:ASP:OD1	2.32	0.63
1:I:81:VAL:HA	1:I:85:GLY:HA3	1.79	0.62
1:B:271:SER:HA	1:B:274:VAL:HG12	1.82	0.61
1:H:141:ARG:HE	1:H:141:ARG:HA	1.65	0.61
1:F:40:ASP:OD1	1:F:40:ASP:N	2.35	0.60
1:H:98:SER:O	1:H:98:SER:OG	2.20	0.60
1:A:111:ILE:HD11	1:B:22:ILE:HG13	1.82	0.60
1:A:69:ASP:OD1	1:A:69:ASP:N	2.35	0.60
1:C:141:ARG:NH1	4:D:302:GOL:O3	2.35	0.59
1:J:68:PRO:HA	1:J:71:ARG:HG2	1.81	0.59
1:A:225:LYS:HB3	1:A:231:THR:HG22	1.85	0.59
1:D:220:ARG:NH2	2:D:303:HEM:O1D	2.35	0.59
1:A:22:ILE:HA	1:B:111:ILE:HG13	1.86	0.58
1:G:273:LEU:HD13	1:H:273:LEU:HD11	1.85	0.58
1:G:240:GLU:OE1	1:G:242:GLN:NE2	2.37	0.58
1:F:141:ARG:NH2	4:F:301:GOL:O2	2.35	0.58
1:F:213:PRO:HB3	1:I:174:ARG:HH21	1.69	0.57
1:J:112:ARG:HE	1:J:118:ALA:HB2	1.69	0.57
1:D:46:ARG:NH2	1:D:55:GLN:O	2.38	0.57
1:A:180:GLU:OE2	1:D:146:ARG:NH2	2.38	0.57
1:A:266:LEU:HG	1:B:266:LEU:HD23	1.87	0.56
1:B:65:ARG:NH1	1:B:96:GLY:O	2.38	0.56
2:C:601:HEM:HBD1	2:C:601:HEM:HHA	1.86	0.56
1:F:155:ALA:HB3	1:F:253:VAL:HB	1.86	0.56
1:H:159:ILE:HD12	1:H:163:GLY:HA2	1.87	0.56
1:C:74:VAL:HG22	1:C:90:VAL:HG21	1.86	0.56
1:I:220:ARG:NH1	2:I:601:HEM:HAA1	2.20	0.56
1:A:54:ASP:N	1:A:54:ASP:OD1	2.34	0.56
1:I:269:LEU:HD22	1:J:269:LEU:HB2	1.87	0.56
1:I:269:LEU:HB2	1:J:269:LEU:HD23	1.88	0.55
1:J:159:ILE:HD12	1:J:163:GLY:HA2	1.88	0.55
1:B:207:TYR:HE1	1:B:215:ILE:HG23	1.72	0.55
1:G:145:LEU:HB2	4:G:603:GOL:H2	1.88	0.55
1:J:33:ASP:HA	1:J:120:HIS:HA	1.87	0.55
1:A:260:GLN:HA	1:A:263:GLN:HG2	1.89	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:33:ASP:HB3	1:G:120:HIS:ND1	2.21	0.55
1:H:88:PHE:O	1:H:107:ARG:HA	2.06	0.55
1:J:88:PHE:CD2	1:J:108:ALA:HB3	2.42	0.55
1:I:155:ALA:HB3	1:I:253:VAL:HB	1.89	0.55
1:I:128:ILE:HB	1:I:131:GLU:HB2	1.88	0.54
1:E:81:VAL:HG11	1:E:121:LEU:HD11	1.87	0.54
1:G:159:ILE:HD12	1:G:163:GLY:HA2	1.89	0.54
1:F:33:ASP:HA	1:F:120:HIS:HA	1.89	0.54
1:J:88:PHE:HD2	1:J:108:ALA:HB3	1.70	0.54
1:E:81:VAL:HA	1:E:85:GLY:HA3	1.89	0.54
1:G:41:TRP:HZ3	1:G:62:PHE:HB2	1.72	0.54
1:A:111:ILE:HB	1:A:120:HIS:HB2	1.90	0.54
1:C:29:THR:HG22	1:C:42:SER:HB2	1.89	0.54
1:J:88:PHE:HE1	1:J:90:VAL:HG12	1.73	0.54
1:F:65:ARG:O	1:F:95:ALA:N	2.32	0.54
1:F:233:PRO:HD2	1:F:257:THR:HG22	1.90	0.53
1:I:131:GLU:OE1	1:I:131:GLU:N	2.40	0.53
1:A:155:ALA:HB3	1:A:253:VAL:HB	1.89	0.53
1:B:155:ALA:HB3	1:B:253:VAL:HB	1.91	0.53
1:E:73:ARG:HH11	1:E:90:VAL:HG13	1.73	0.53
1:J:226:ARG:HB2	1:J:228:ASP:HB3	1.90	0.53
1:I:190:ILE:HG13	1:I:191:LEU:HD12	1.89	0.53
1:E:33:ASP:OD1	1:E:33:ASP:N	2.42	0.53
1:F:43:ASP:HA	1:F:46:ARG:HD2	1.92	0.52
1:I:63:LEU:HD22	1:I:71:ARG:HB2	1.91	0.52
1:E:68:PRO:HA	1:E:71:ARG:HG2	1.92	0.52
1:H:233:PRO:HD2	1:H:257:THR:HG22	1.91	0.52
1:I:29:THR:HG22	1:I:42:SER:HB2	1.92	0.52
1:E:113:ASP:H	1:E:119:ARG:HG2	1.73	0.52
1:G:113:ASP:HB2	1:G:117:THR:H	1.73	0.52
1:H:203:TYR:HB3	2:H:302:HEM:HAA1	1.91	0.52
1:G:270:GLN:O	1:G:274:VAL:HG23	2.09	0.52
1:H:145:LEU:HD21	1:H:167:LEU:HD21	1.90	0.51
1:E:89:ASP:HA	1:E:106:ALA:O	2.10	0.51
1:J:200:HIS:HA	1:J:203:TYR:CD2	2.46	0.51
1:B:33:ASP:HB3	1:B:120:HIS:ND1	2.26	0.51
1:C:261:GLN:O	1:C:265:ARG:HG3	2.10	0.51
1:E:33:ASP:HA	1:E:120:HIS:HB3	1.91	0.51
1:H:182:GLU:O	1:H:186:GLN:NE2	2.43	0.51
1:D:52:GLY:HA2	1:D:55:GLN:HB2	1.93	0.51
1:C:76:SER:O	1:C:80:ARG:HG3	2.11	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:89:ASP:HA	1:F:106:ALA:O	2.10	0.51
1:B:68:PRO:HA	1:B:71:ARG:HG2	1.92	0.51
1:F:200:HIS:HA	1:F:203:TYR:CD2	2.46	0.51
1:I:207:TYR:HE2	1:I:215:ILE:HG23	1.76	0.50
1:G:269:LEU:HG	1:H:270:GLN:CD	2.32	0.50
1:E:108:ALA:HB1	1:E:121:LEU:HD22	1.93	0.50
1:E:226:ARG:HB2	1:E:228:ASP:HB3	1.92	0.50
1:D:113:ASP:HB2	1:D:117:THR:H	1.75	0.50
1:D:190:ILE:HG13	1:D:191:LEU:HD13	1.93	0.50
1:J:25:PHE:HE2	1:J:28:GLY:N	2.09	0.50
1:I:273:LEU:HD21	1:J:272:GLU:HB3	1.93	0.50
1:C:105:ARG:HB2	1:C:128:ILE:HD13	1.94	0.50
1:F:113:ASP:HB2	1:F:117:THR:H	1.76	0.50
1:G:65:ARG:HB3	1:G:94:VAL:HG13	1.94	0.49
1:I:30:TRP:CZ3	1:I:32:LEU:HB3	2.47	0.49
1:I:112:ARG:HB3	1:I:116:GLY:HA2	1.94	0.49
4:E:603:GOL:H32	1:F:145:LEU:HD13	1.94	0.49
1:I:88:PHE:CE2	1:I:108:ALA:HB3	2.48	0.49
1:A:60:ASP:N	1:A:60:ASP:OD1	2.46	0.49
1:E:113:ASP:HB2	1:E:119:ARG:HH11	1.77	0.49
1:H:207:TYR:OH	1:H:240:GLU:OE1	2.24	0.49
1:H:94:VAL:O	1:H:101:GLY:HA2	2.12	0.49
1:A:103:TRP:HB3	1:A:128:ILE:HG13	1.95	0.49
1:A:215:ILE:HG13	1:A:217:GLY:H	1.77	0.49
1:H:93:ARG:NE	1:H:101:GLY:HA3	2.28	0.49
1:H:39:LEU:HD22	1:H:41:TRP:HE3	1.78	0.49
1:C:49:LEU:HD21	1:C:62:PHE:HD1	1.76	0.49
1:C:145:LEU:HD13	4:D:302:GOL:H11	1.95	0.49
1:J:190:ILE:HG13	1:J:191:LEU:HD12	1.95	0.49
1:F:69:ASP:OD1	1:F:69:ASP:N	2.30	0.48
1:E:170:THR:HA	1:E:173:GLU:HG2	1.95	0.48
1:J:92:PHE:CZ	1:J:104:ILE:HD11	2.47	0.48
1:J:220:ARG:NH1	2:J:303:HEM:HBA1	2.28	0.48
4:A:603:GOL:O1	1:B:141:ARG:NH2	2.44	0.48
1:D:145:LEU:HD13	4:D:302:GOL:H32	1.95	0.48
1:D:270:GLN:O	1:D:274:VAL:HG13	2.12	0.48
1:I:89:ASP:N	1:I:89:ASP:OD1	2.45	0.48
1:J:197:ARG:HH12	1:J:225:LYS:HD3	1.77	0.48
1:D:81:VAL:HG22	1:D:110:LEU:HD23	1.95	0.48
1:B:28:GLY:HA3	1:B:45:ALA:HB2	1.96	0.48
1:C:150:HIS:ND1	1:C:170:THR:HG21	2.28	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:269:LEU:O	1:J:269:LEU:HD22	2.13	0.48
1:F:32:LEU:O	1:F:121:LEU:N	2.46	0.48
1:G:49:LEU:HD21	1:G:62:PHE:HD1	1.78	0.48
1:J:269:LEU:HD13	1:J:270:GLN:N	2.29	0.48
1:J:113:ASP:OD1	1:J:114:GLU:N	2.47	0.48
1:B:119:ARG:HB3	1:B:120:HIS:CD2	2.49	0.47
1:J:210:THR:HG21	1:J:215:ILE:HD12	1.95	0.47
1:A:75:GLU:O	1:A:78:ILE:HG13	2.13	0.47
1:E:193:PRO:HG3	1:E:223:THR:HG22	1.96	0.47
1:I:262:THR:HG23	1:J:266:LEU:HD21	1.97	0.47
1:J:220:ARG:NH2	2:J:303:HEM:O2D	2.47	0.47
1:A:193:PRO:HG3	1:A:223:THR:HG22	1.97	0.47
1:B:108:ALA:HA	1:B:123:GLY:HA3	1.96	0.47
1:I:29:THR:H	1:I:42:SER:HB3	1.80	0.47
1:J:88:PHE:CE1	1:J:90:VAL:HG12	2.50	0.47
1:B:31:ASP:OD1	1:B:120:HIS:HB3	2.14	0.47
1:B:112:ARG:HA	1:B:118:ALA:HA	1.97	0.47
1:H:180:GLU:OE1	1:H:180:GLU:N	2.47	0.47
1:I:226:ARG:HB2	1:I:228:ASP:HB3	1.97	0.47
1:J:207:TYR:CD2	2:J:303:HEM:HBD1	2.50	0.47
1:J:233:PRO:HD2	1:J:257:THR:HG22	1.97	0.47
2:D:303:HEM:HHC	2:D:303:HEM:HBB2	1.97	0.47
1:G:105:ARG:HB2	1:G:128:ILE:HD13	1.95	0.47
1:H:108:ALA:HB1	1:H:121:LEU:HG	1.97	0.47
1:B:23:GLU:O	1:B:25:PHE:N	2.39	0.47
1:A:190:ILE:HG13	1:A:191:LEU:HD13	1.97	0.46
1:B:32:LEU:HD13	1:B:39:LEU:HD12	1.97	0.46
1:J:73:ARG:NH1	1:J:90:VAL:HG23	2.30	0.46
1:E:93:ARG:HH11	1:E:101:GLY:HA3	1.80	0.46
1:H:110:LEU:HD12	1:H:112:ARG:HG2	1.97	0.46
1:E:105:ARG:HB2	1:E:128:ILE:HD13	1.95	0.46
1:G:51:ILE:HG12	1:G:61:LEU:HD21	1.98	0.46
2:I:601:HEM:HMB2	2:I:601:HEM:HBB2	1.97	0.46
1:C:33:ASP:HA	1:C:120:HIS:HA	1.98	0.46
1:C:75:GLU:O	1:C:78:ILE:HG13	2.15	0.46
1:E:197:ARG:NH2	1:E:225:LYS:HE2	2.31	0.46
1:F:220:ARG:NH2	2:F:302:HEM:O2D	2.48	0.46
1:H:144:HIS:O	1:H:148:ILE:HG12	2.15	0.46
1:I:30:TRP:HZ3	1:I:32:LEU:HB3	1.80	0.46
1:F:81:VAL:HA	1:F:85:GLY:HA3	1.97	0.46
1:J:105:ARG:HB2	1:J:128:ILE:HD13	1.97	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:270:GLN:O	1:J:274:VAL:HG23	2.15	0.46
1:A:141:ARG:NH2	4:A:604:GOL:O1	2.47	0.46
1:J:81:VAL:HA	1:J:85:GLY:HA3	1.97	0.46
1:E:103:TRP:HB3	1:E:128:ILE:HG13	1.98	0.46
1:E:189:ASN:HA	1:E:192:MET:HE3	1.98	0.46
1:B:103:TRP:CD2	1:B:132:LYS:HD3	2.51	0.46
1:E:77:ALA:HA	1:E:80:ARG:HD2	1.98	0.46
1:H:69:ASP:N	1:H:69:ASP:OD1	2.44	0.46
1:J:210:THR:HG22	1:J:212:ASP:H	1.81	0.46
1:C:113:ASP:OD1	1:C:114:GLU:N	2.44	0.45
1:C:192:MET:HE3	1:C:196:ASP:HB3	1.98	0.45
1:C:233:PRO:HD2	1:C:257:THR:HG22	1.98	0.45
1:C:29:THR:H	1:C:42:SER:HB3	1.81	0.45
1:I:145:LEU:HB2	4:J:302:GOL:H2	1.99	0.45
1:F:270:GLN:NE2	1:F:271:SER:HB2	2.32	0.45
1:G:73:ARG:HH11	1:G:90:VAL:HG23	1.81	0.45
1:J:197:ARG:NH1	1:J:225:LYS:HD3	2.31	0.45
1:A:265:ARG:HD2	1:B:266:LEU:HD11	1.99	0.45
1:D:200:HIS:HA	1:D:203:TYR:CD2	2.51	0.45
1:E:102:GLN:NE2	1:E:127:ASP:OD1	2.50	0.45
1:G:265:ARG:O	1:G:269:LEU:HD22	2.16	0.45
1:J:110:LEU:HD23	1:J:110:LEU:H	1.81	0.45
1:I:159:ILE:HD12	1:I:163:GLY:HA2	1.98	0.45
1:J:235:HIS:HB2	1:J:256:LEU:HD11	1.99	0.45
1:A:228:ASP:HB3	1:A:230:THR:H	1.82	0.45
1:J:66:LEU:HD12	1:J:71:ARG:HA	1.98	0.45
1:D:255:ASP:OD1	1:D:257:THR:HG23	2.17	0.45
1:H:158:VAL:HB	1:H:167:LEU:HB2	1.99	0.45
1:I:45:ALA:HB1	1:I:125:PHE:HD2	1.82	0.45
1:B:102:GLN:NE2	1:B:103:TRP:O	2.47	0.44
1:F:54:ASP:N	1:F:54:ASP:OD1	2.50	0.44
1:C:81:VAL:HG13	1:C:110:LEU:HD21	2.00	0.44
1:J:263:GLN:HA	1:J:266:LEU:HD22	2.00	0.44
1:B:189:ASN:HA	1:B:192:MET:HE3	2.00	0.44
1:G:212:ASP:HA	1:G:213:PRO:HD3	1.78	0.44
1:J:103:TRP:N	1:J:129:ASP:OD1	2.44	0.44
1:B:220:ARG:NH1	2:B:302:HEM:O2D	2.41	0.44
1:E:119:ARG:NE	1:E:119:ARG:HA	2.33	0.44
1:C:68:PRO:HA	1:C:71:ARG:HG2	2.00	0.44
1:G:68:PRO:HA	1:G:71:ARG:HG2	2.00	0.44
1:I:261:GLN:O	1:I:265:ARG:HG2	2.18	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:THR:HB	1:A:211:SER:H	1.65	0.43
1:I:25:PHE:HD1	1:I:27:VAL:H	1.64	0.43
1:B:181:LEU:HD22	1:F:143:THR:HG22	2.00	0.43
1:C:150:HIS:HA	1:C:170:THR:HG23	2.00	0.43
1:D:75:GLU:O	1:D:78:ILE:HG13	2.19	0.43
1:B:49:LEU:HD21	1:B:62:PHE:HD1	1.83	0.43
1:I:269:LEU:HD13	1:J:269:LEU:HD23	2.01	0.43
4:A:603:GOL:H32	1:B:145:LEU:HB2	2.01	0.43
1:C:200:HIS:HA	1:C:203:TYR:CD2	2.53	0.43
1:E:81:VAL:HG23	1:E:85:GLY:HA3	2.01	0.43
1:E:119:ARG:HB3	1:E:120:HIS:H	1.60	0.43
1:I:269:LEU:HD12	1:I:273:LEU:HD13	2.01	0.43
1:I:269:LEU:HG	1:I:270:GLN:N	2.31	0.43
1:C:207:TYR:HB2	2:C:601:HEM:HBD2	2.00	0.43
1:G:192:MET:HG3	1:G:197:ARG:HA	2.00	0.43
1:I:113:ASP:OD1	1:I:119:ARG:HB2	2.18	0.43
1:B:220:ARG:CZ	2:B:302:HEM:HBA1	2.49	0.43
1:C:85:GLY:HA2	1:C:110:LEU:HD12	2.00	0.43
1:H:29:THR:HG22	1:H:42:SER:HB2	2.00	0.43
1:I:25:PHE:HD1	1:I:26:GLY:N	2.16	0.43
1:A:43:ASP:O	1:A:46:ARG:HG3	2.19	0.42
1:A:146[A]:ARG:NE	1:D:180:GLU:OE2	2.52	0.42
4:A:603:GOL:H32	1:B:145:LEU:HD13	2.01	0.42
1:D:74:VAL:O	1:D:78:ILE:HG23	2.18	0.42
4:F:301:GOL:O3	4:F:301:GOL:O1	2.33	0.42
1:G:141:ARG:HE	4:G:603:GOL:HO3	1.63	0.42
1:J:65:ARG:HA	1:J:65:ARG:HD2	1.92	0.42
1:A:216:ILE:HG13	1:A:238:ILE:HB	2.01	0.42
1:D:93:ARG:HH11	1:D:100:ALA:HA	1.84	0.42
1:E:119:ARG:HG2	1:E:119:ARG:HH11	1.84	0.42
1:I:207:TYR:OH	1:I:240:GLU:OE1	2.29	0.42
1:G:152:ILE:HD13	1:G:156:MET:HE2	2.00	0.42
1:C:31:ASP:OD1	1:C:40:ASP:HB2	2.20	0.42
1:D:220:ARG:NH1	2:D:303:HEM:HBA1	2.34	0.42
1:A:93:ARG:HD3	1:A:101:GLY:HA3	2.01	0.42
1:A:192:MET:HE2	1:A:192:MET:HB2	1.78	0.42
1:A:74:VAL:O	1:A:78:ILE:HG23	2.20	0.42
1:B:173:GLU:HB3	1:B:178:TRP:O	2.19	0.42
1:C:269:LEU:HD13	1:C:269:LEU:HA	1.77	0.42
1:D:29:THR:HG22	1:D:42:SER:HB3	2.01	0.42
1:E:41:TRP:NE1	1:E:46:ARG:HG2	2.35	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:220:ARG:HG3	1:A:222:VAL:HG13	2.01	0.42
1:C:226:ARG:HB2	1:C:228:ASP:HB3	2.02	0.42
1:I:269:LEU:HB2	1:J:269:LEU:CD2	2.49	0.42
1:A:68:PRO:HA	1:A:71:ARG:HH11	1.84	0.42
1:C:236:LEU:HG	1:C:238:ILE:HD11	2.00	0.42
1:J:66:LEU:HD22	1:J:92:PHE:CE1	2.55	0.42
1:I:89:ASP:HA	1:I:106:ALA:O	2.20	0.42
1:A:192:MET:CE	1:A:197:ARG:HA	2.49	0.42
1:D:218:ILE:H	1:D:218:ILE:HG13	1.62	0.42
1:F:105:ARG:HB2	1:F:128:ILE:HD13	2.01	0.42
1:H:189:ASN:HA	1:H:192:MET:HE3	2.02	0.42
1:C:110:LEU:HD23	1:C:110:LEU:HA	1.85	0.41
1:E:207:TYR:OH	1:E:240:GLU:OE1	2.28	0.41
1:G:51:ILE:HD12	1:G:51:ILE:HA	1.77	0.41
1:G:158:VAL:HB	1:G:167:LEU:HB2	2.02	0.41
1:B:75:GLU:O	1:B:78:ILE:HG13	2.20	0.41
1:B:240:GLU:HG2	1:B:249:PHE:CE2	2.55	0.41
1:D:76:SER:HA	1:D:79:LYS:HD2	2.01	0.41
1:D:265:ARG:O	1:D:269:LEU:HG	2.19	0.41
1:E:33:ASP:HA	1:E:120:HIS:HA	2.02	0.41
1:I:69:ASP:OD1	1:I:69:ASP:N	2.45	0.41
1:C:220:ARG:HG3	1:C:222:VAL:HG13	2.03	0.41
1:C:170:THR:HA	1:C:173:GLU:HG2	2.02	0.41
1:J:113:ASP:OD2	1:J:119:ARG:NH2	2.54	0.41
1:G:140:THR:OG1	1:H:243:SER:OG	2.28	0.41
1:G:110:LEU:HD12	1:G:112:ARG:HD2	2.02	0.41
1:F:92:PHE:CZ	1:F:104:ILE:HD11	2.56	0.41
1:B:88:PHE:HB3	1:B:108:ALA:HB3	2.03	0.41
1:H:232:PHE:HB2	1:H:257:THR:CG2	2.51	0.41
1:A:81:VAL:O	1:A:110:LEU:HD11	2.21	0.41
1:A:265:ARG:HG2	1:B:266:LEU:HD21	2.02	0.41
1:C:110:LEU:HD22	1:C:118:ALA:HB1	2.03	0.41
1:E:31:ASP:HA	1:E:121:LEU:O	2.21	0.40
1:E:41:TRP:CZ2	1:E:57:ALA:HA	2.57	0.40
1:H:67:GLU:HG2	1:H:68:PRO:HD2	2.03	0.40
1:H:75:GLU:O	1:H:78:ILE:HG12	2.21	0.40
1:I:233:PRO:HD2	1:I:257:THR:HG22	2.02	0.40
1:B:159:ILE:HD12	1:B:163:GLY:HA2	2.03	0.40
1:D:103:TRP:HB3	1:D:128:ILE:HG13	2.02	0.40
1:F:78:ILE:HA	1:F:81:VAL:HG12	2.02	0.40
1:G:33:ASP:HA	1:G:120:HIS:HA	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:41:TRP:HZ3	1:C:62:PHE:HB2	1.86	0.40
1:C:220:ARG:NH1	2:C:601:HEM:O2D	2.54	0.40
1:E:110:LEU:HB2	1:F:24:GLY:N	2.37	0.40
1:F:52:GLY:HA2	1:F:55:GLN:HG2	2.03	0.40
1:H:107:ARG:O	1:H:124:ILE:N	2.51	0.40
1:H:176:PHE:CE2	1:H:191:LEU:HB3	2.57	0.40
1:B:210:THR:HG22	1:B:212:ASP:H	1.87	0.40
1:G:262:THR:HG22	1:G:265:ARG:HH21	1.85	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	254/273 (93%)	242 (95%)	11 (4%)	1 (0%)	34	60
1	B	251/273 (92%)	238 (95%)	12 (5%)	1 (0%)	34	60
1	C	249/273 (91%)	232 (93%)	16 (6%)	1 (0%)	34	60
1	D	252/273 (92%)	238 (94%)	12 (5%)	2 (1%)	19	43
1	E	249/273 (91%)	232 (93%)	15 (6%)	2 (1%)	19	43
1	F	249/273 (91%)	234 (94%)	12 (5%)	3 (1%)	13	32
1	G	247/273 (90%)	235 (95%)	12 (5%)	0	100	100
1	H	248/273 (91%)	234 (94%)	14 (6%)	0	100	100
1	I	249/273 (91%)	235 (94%)	14 (6%)	0	100	100
1	J	250/273 (92%)	235 (94%)	15 (6%)	0	100	100
All	All	2498/2730 (92%)	2355 (94%)	133 (5%)	10 (0%)	34	60

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	216	ILE
1	A	83	GLU
1	B	96	GLY
1	C	86	GLY
1	F	85	GLY
1	F	84	ARG
1	D	212	ASP
1	E	35	LYS
1	E	119	ARG
1	F	212	ASP

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	214/228 (94%)	196 (92%)	18 (8%)	11	25
1	B	211/228 (92%)	198 (94%)	13 (6%)	18	40
1	C	209/228 (92%)	191 (91%)	18 (9%)	10	24
1	D	212/228 (93%)	193 (91%)	19 (9%)	9	22
1	E	209/228 (92%)	197 (94%)	12 (6%)	20	44
1	F	209/228 (92%)	192 (92%)	17 (8%)	11	27
1	G	208/228 (91%)	187 (90%)	21 (10%)	7	17
1	H	209/228 (92%)	195 (93%)	14 (7%)	16	37
1	I	208/228 (91%)	189 (91%)	19 (9%)	9	21
1	J	210/228 (92%)	195 (93%)	15 (7%)	14	34
All	All	2099/2280 (92%)	1933 (92%)	166 (8%)	12	28

All (166) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	35	LYS
1	A	49	LEU
1	A	60	ASP
1	A	69	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	72	GLU
1	A	83	GLU
1	A	84	ARG
1	A	92	PHE
1	A	93	ARG
1	A	94	VAL
1	A	99	ASN
1	A	191	LEU
1	A	210	THR
1	A	225	LYS
1	A	246	GLU
1	A	265	ARG
1	A	266	LEU
1	A	272	GLU
1	B	33	ASP
1	B	34	LEU
1	B	36	THR
1	B	41	TRP
1	B	67	GLU
1	B	69	ASP
1	B	104	ILE
1	B	141	ARG
1	B	173	GLU
1	B	212	ASP
1	B	214	HIS
1	B	223	THR
1	B	237	SER
1	C	36	THR
1	C	41	TRP
1	C	67	GLU
1	C	69	ASP
1	C	73	ARG
1	C	76	SER
1	C	81	VAL
1	C	84	ARG
1	C	133	GLN
1	C	140	THR
1	C	141	ARG
1	C	173	GLU
1	C	261	GLN
1	C	263	GLN
1	C	267	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	269	LEU
1	C	271	SER
1	C	272	GLU
1	D	22	ILE
1	D	25	PHE
1	D	32	LEU
1	D	41	TRP
1	D	69	ASP
1	D	76	SER
1	D	79	LYS
1	D	80	ARG
1	D	84	ARG
1	D	93	ARG
1	D	97	THR
1	D	99	ASN
1	D	112	ARG
1	D	113	ASP
1	D	191	LEU
1	D	216	ILE
1	D	234	MET
1	D	267	GLN
1	D	273	LEU
1	E	31	ASP
1	E	33	ASP
1	E	36	THR
1	E	41	TRP
1	E	67	GLU
1	E	112	ARG
1	E	119	ARG
1	E	120	HIS
1	E	131	GLU
1	E	236	LEU
1	E	266	LEU
1	E	273	LEU
1	F	25	PHE
1	F	32	LEU
1	F	35	LYS
1	F	36	THR
1	F	40	ASP
1	F	41	TRP
1	F	69	ASP
1	F	84	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	102	GLN
1	F	110	LEU
1	F	112	ARG
1	F	113	ASP
1	F	121	LEU
1	F	143	THR
1	F	180	GLU
1	F	230	THR
1	F	261	GLN
1	G	32	LEU
1	G	36	THR
1	G	41	TRP
1	G	44	THR
1	G	51	ILE
1	G	67	GLU
1	G	93	ARG
1	G	111	ILE
1	G	112	ARG
1	G	113	ASP
1	G	121	LEU
1	G	206	ARG
1	G	220	ARG
1	G	223	THR
1	G	228	ASP
1	G	246	GLU
1	G	265	ARG
1	G	266	LEU
1	G	268	GLU
1	G	269	LEU
1	G	273	LEU
1	H	27	VAL
1	H	36	THR
1	H	55	GLN
1	H	67	GLU
1	H	97	THR
1	H	98	SER
1	H	110	LEU
1	H	112	ARG
1	H	113	ASP
1	H	141	ARG
1	H	218	ILE
1	H	220	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	H	222	VAL
1	H	236	LEU
1	I	25	PHE
1	I	27	VAL
1	I	32	LEU
1	I	36	THR
1	I	41	TRP
1	I	110	LEU
1	I	113	ASP
1	I	114	GLU
1	I	119	ARG
1	I	121	LEU
1	I	175	LEU
1	I	215	ILE
1	I	216	ILE
1	I	223	THR
1	I	237	SER
1	I	256	LEU
1	I	261	GLN
1	I	268	GLU
1	I	269	LEU
1	J	36	THR
1	J	41	TRP
1	J	66	LEU
1	J	88	PHE
1	J	94	VAL
1	J	97	THR
1	J	98	SER
1	J	102	GLN
1	J	225	LYS
1	J	260	GLN
1	J	261	GLN
1	J	262	THR
1	J	266	LEU
1	J	269	LEU
1	J	271	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](#)

35 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	GOL	F	301	-	5,5,5	1.18	1 (20%)	5,5,5	1.10	0
4	GOL	G	604	-	5,5,5	0.97	0	5,5,5	1.14	0
4	GOL	J	301	-	5,5,5	1.15	1 (20%)	5,5,5	0.91	0
4	GOL	E	603	-	5,5,5	1.19	0	5,5,5	0.94	0
2	HEM	I	601	1	41,50,50	1.47	6 (14%)	45,82,82	1.83	10 (22%)
2	HEM	C	601	1	41,50,50	1.61	7 (17%)	45,82,82	2.08	16 (35%)
4	GOL	E	604	-	5,5,5	1.03	0	5,5,5	0.92	0
4	GOL	I	603	-	5,5,5	0.95	0	5,5,5	1.01	0
4	GOL	H	301	-	5,5,5	1.08	0	5,5,5	0.98	0
2	HEM	G	601	1	41,50,50	1.48	5 (12%)	45,82,82	1.45	8 (17%)
4	GOL	G	603	-	5,5,5	1.10	0	5,5,5	0.86	0
3	CYN	F	303	-	0,1,1	-	-	-	-	-
4	GOL	A	604	-	5,5,5	1.25	0	5,5,5	1.17	0
3	CYN	G	602	-	0,1,1	-	-	-	-	-
4	GOL	D	301	-	5,5,5	1.41	1 (20%)	5,5,5	1.30	1 (20%)
3	CYN	I	602	-	0,1,1	-	-	-	-	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	HEM	E	601	1	41,50,50	1.49	6 (14%)	45,82,82	1.61	9 (20%)
2	HEM	H	302	1	41,50,50	1.48	4 (9%)	45,82,82	1.78	11 (24%)
4	GOL	B	301	-	5,5,5	1.36	1 (20%)	5,5,5	1.14	0
3	CYN	H	303	-	0,1,1	-	-	-	-	-
3	CYN	J	304	-	0,1,1	-	-	-	-	-
4	GOL	D	302	-	5,5,5	0.86	0	5,5,5	1.00	0
2	HEM	D	303	1	41,50,50	1.54	7 (17%)	45,82,82	1.75	12 (26%)
2	HEM	A	601	1	41,50,50	1.45	5 (12%)	45,82,82	1.97	11 (24%)
2	HEM	J	303	1	41,50,50	1.43	5 (12%)	45,82,82	1.51	7 (15%)
4	GOL	C	603	-	5,5,5	1.00	0	5,5,5	1.02	0
3	CYN	E	602	-	0,1,1	-	-	-	-	-
4	GOL	A	603	-	5,5,5	1.03	0	5,5,5	0.94	0
4	GOL	J	302	-	5,5,5	0.93	0	5,5,5	0.97	0
2	HEM	B	302	1	41,50,50	1.49	5 (12%)	45,82,82	1.72	12 (26%)
3	CYN	B	303	-	0,1,1	-	-	-	-	-
3	CYN	D	304	-	0,1,1	-	-	-	-	-
3	CYN	C	602	-	0,1,1	-	-	-	-	-
3	CYN	A	602	-	0,1,1	-	-	-	-	-
2	HEM	F	302	1	41,50,50	1.43	5 (12%)	45,82,82	1.65	13 (28%)

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	GOL	F	301	-	-	1/4/4/4	-
4	GOL	G	604	-	-	0/4/4/4	-
4	GOL	J	301	-	-	2/4/4/4	-
4	GOL	E	603	-	-	3/4/4/4	-
2	HEM	I	601	1	-	6/12/54/54	-
2	HEM	C	601	1	-	9/12/54/54	-
4	GOL	E	604	-	-	2/4/4/4	-
4	GOL	I	603	-	-	2/4/4/4	-
4	GOL	H	301	-	-	2/4/4/4	-
2	HEM	G	601	1	-	6/12/54/54	-
4	GOL	G	603	-	-	2/4/4/4	-
4	GOL	A	604	-	-	1/4/4/4	-
4	GOL	D	301	-	-	3/4/4/4	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	E	601	1	-	2/12/54/54	-
2	HEM	H	302	1	-	8/12/54/54	-
4	GOL	B	301	-	-	0/4/4/4	-
4	GOL	D	302	-	-	2/4/4/4	-
2	HEM	D	303	1	-	6/12/54/54	-
2	HEM	A	601	1	-	5/12/54/54	-
2	HEM	J	303	1	-	6/12/54/54	-
4	GOL	C	603	-	-	2/4/4/4	-
4	GOL	A	603	-	-	0/4/4/4	-
4	GOL	J	302	-	-	2/4/4/4	-
2	HEM	B	302	1	-	7/12/54/54	-
2	HEM	F	302	1	-	3/12/54/54	-

All (59) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	601	HEM	C3C-C2C	-5.52	1.32	1.40
2	H	302	HEM	C3C-C2C	-4.29	1.34	1.40
2	B	302	HEM	C3C-CAC	4.25	1.56	1.47
2	E	601	HEM	C3C-CAC	4.07	1.56	1.47
2	D	303	HEM	C3C-CAC	4.00	1.56	1.47
2	I	601	HEM	C3C-CAC	3.98	1.56	1.47
2	J	303	HEM	C3C-C2C	-3.87	1.35	1.40
2	G	601	HEM	C3C-CAC	3.83	1.55	1.47
2	F	302	HEM	C3C-CAC	3.82	1.55	1.47
2	A	601	HEM	C3C-C2C	-3.81	1.35	1.40
2	I	601	HEM	C3C-C2C	-3.76	1.35	1.40
2	A	601	HEM	C3C-CAC	3.63	1.55	1.47
2	G	601	HEM	C3C-C2C	-3.62	1.35	1.40
2	H	302	HEM	C3C-CAC	3.58	1.55	1.47
2	J	303	HEM	C3C-CAC	3.58	1.55	1.47
2	F	302	HEM	C3C-C2C	-3.56	1.35	1.40
2	E	601	HEM	C3C-C2C	-3.56	1.35	1.40
2	D	303	HEM	C3C-C2C	-3.40	1.35	1.40
2	B	302	HEM	CAB-C3B	3.04	1.55	1.47
2	D	303	HEM	CAB-C3B	3.02	1.55	1.47
2	E	601	HEM	CAB-C3B	3.01	1.55	1.47
2	A	601	HEM	CAA-C2A	2.97	1.56	1.52
2	C	601	HEM	C3C-CAC	2.87	1.53	1.47
2	C	601	HEM	CAB-C3B	2.79	1.55	1.47

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	302	HEM	C3C-C2C	-2.78	1.36	1.40
2	H	302	HEM	CAB-C3B	2.78	1.55	1.47
2	D	303	HEM	CMD-C2D	2.78	1.56	1.50
2	G	601	HEM	CAB-C3B	2.77	1.55	1.47
2	F	302	HEM	CAB-C3B	2.74	1.54	1.47
2	D	303	HEM	CAA-C2A	2.73	1.56	1.52
2	C	601	HEM	CAA-C2A	2.68	1.56	1.52
2	J	303	HEM	CAB-C3B	2.68	1.54	1.47
2	I	601	HEM	CAB-C3B	2.66	1.54	1.47
2	H	302	HEM	CAA-C2A	2.65	1.55	1.52
2	A	601	HEM	CAB-C3B	2.59	1.54	1.47
2	B	302	HEM	CAA-C2A	2.57	1.55	1.52
2	G	601	HEM	FE-NB	2.52	2.09	1.96
4	B	301	GOL	O2-C2	-2.51	1.35	1.43
2	D	303	HEM	CMB-C2B	2.44	1.56	1.50
2	E	601	HEM	CAA-C2A	2.43	1.55	1.52
2	C	601	HEM	FE-NB	2.37	2.08	1.96
2	D	303	HEM	CMA-C3A	2.37	1.56	1.51
2	J	303	HEM	CAA-C2A	2.35	1.55	1.52
2	F	302	HEM	FE-NB	2.22	2.07	1.96
2	A	601	HEM	CMD-C2D	2.22	1.55	1.50
2	C	601	HEM	C3B-C2B	-2.20	1.32	1.37
2	E	601	HEM	CMD-C2D	2.19	1.55	1.50
2	I	601	HEM	CMB-C2B	2.19	1.55	1.50
2	I	601	HEM	CMD-C2D	2.18	1.55	1.50
2	E	601	HEM	FE-NB	2.18	2.07	1.96
4	J	301	GOL	O2-C2	-2.17	1.36	1.43
2	C	601	HEM	CMD-C2D	2.15	1.55	1.50
4	F	301	GOL	O2-C2	-2.13	1.37	1.43
2	F	302	HEM	CMD-C2D	2.08	1.55	1.50
4	D	301	GOL	O2-C2	-2.07	1.37	1.43
2	G	601	HEM	CAA-C2A	2.06	1.55	1.52
2	I	601	HEM	FE-NB	2.04	2.07	1.96
2	J	303	HEM	C3B-C2B	-2.04	1.33	1.37
2	B	302	HEM	CMD-C2D	2.03	1.55	1.50

All (110) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	601	HEM	CMA-C3A-C4A	-6.47	118.53	128.46
2	C	601	HEM	CMA-C3A-C4A	-6.28	118.81	128.46
2	H	302	HEM	CBA-CAA-C2A	5.21	121.51	112.62

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	601	HEM	CBA-CAA-C2A	4.78	120.78	112.62
2	D	303	HEM	CMA-C3A-C4A	-4.66	121.29	128.46
2	A	601	HEM	CMA-C3A-C2A	4.59	133.59	124.94
2	I	601	HEM	CAA-CBA-CGA	-4.52	101.09	113.76
2	C	601	HEM	CMA-C3A-C2A	4.46	133.34	124.94
2	J	303	HEM	CMA-C3A-C4A	-4.37	121.75	128.46
2	I	601	HEM	C4D-ND-C1D	4.36	109.57	105.07
2	B	302	HEM	CMA-C3A-C4A	-4.32	121.82	128.46
2	E	601	HEM	C3B-C2B-C1B	4.27	109.65	106.49
2	H	302	HEM	CAA-C2A-C3A	3.87	138.37	127.25
2	C	601	HEM	C4D-ND-C1D	3.79	108.99	105.07
2	D	303	HEM	CHB-C1B-NB	3.69	128.94	124.38
2	D	303	HEM	CMA-C3A-C2A	3.55	131.64	124.94
2	F	302	HEM	C4B-CHC-C1C	3.41	127.06	122.56
2	I	601	HEM	CAA-C2A-C3A	-3.38	117.52	127.25
2	A	601	HEM	CMC-C2C-C3C	3.37	130.98	124.68
2	I	601	HEM	C3D-C4D-ND	-3.35	106.44	110.17
2	A	601	HEM	CBA-CAA-C2A	3.27	118.20	112.62
2	E	601	HEM	C1B-NB-C4B	3.27	108.45	105.07
2	H	302	HEM	CMA-C3A-C4A	-3.27	123.44	128.46
2	C	601	HEM	CBA-CAA-C2A	3.24	118.15	112.62
2	A	601	HEM	C4D-ND-C1D	3.24	108.42	105.07
2	B	302	HEM	C1B-NB-C4B	3.23	108.41	105.07
2	E	601	HEM	CMC-C2C-C3C	3.23	130.72	124.68
2	G	601	HEM	C1B-NB-C4B	3.20	108.38	105.07
2	F	302	HEM	C4D-ND-C1D	3.19	108.36	105.07
2	H	302	HEM	C3B-C2B-C1B	3.17	108.84	106.49
2	F	302	HEM	C3B-C2B-C1B	3.15	108.82	106.49
2	I	601	HEM	CMC-C2C-C3C	3.14	130.55	124.68
2	E	601	HEM	C4D-ND-C1D	3.14	108.31	105.07
2	B	302	HEM	C4C-CHD-C1D	3.11	126.66	122.56
2	F	302	HEM	C1B-NB-C4B	3.10	108.28	105.07
2	B	302	HEM	C3B-C2B-C1B	3.07	108.76	106.49
2	G	601	HEM	C3B-C2B-C1B	3.00	108.71	106.49
2	A	601	HEM	C4B-CHC-C1C	2.98	126.50	122.56
2	D	303	HEM	CBA-CAA-C2A	2.93	117.62	112.62
2	J	303	HEM	CMA-C3A-C2A	2.93	130.46	124.94
2	C	601	HEM	CAD-C3D-C4D	2.84	129.62	124.66
2	C	601	HEM	C4B-CHC-C1C	2.84	126.30	122.56
2	H	302	HEM	CMA-C3A-C2A	2.79	130.21	124.94
2	F	302	HEM	CMC-C2C-C3C	2.70	129.73	124.68
2	C	601	HEM	CAD-C3D-C2D	-2.67	122.91	127.88

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	HEM	C2D-C1D-ND	-2.67	106.69	109.88
2	C	601	HEM	C2C-C3C-C4C	2.61	108.72	106.90
2	D	303	HEM	CHA-C4D-ND	2.60	127.60	124.38
2	D	303	HEM	C2C-C3C-C4C	2.60	108.71	106.90
2	H	302	HEM	C1B-NB-C4B	2.59	107.75	105.07
2	A	601	HEM	C1B-NB-C4B	2.58	107.74	105.07
2	H	302	HEM	C4B-CHC-C1C	2.57	125.96	122.56
2	H	302	HEM	CHB-C1B-NB	2.57	127.56	124.38
2	E	601	HEM	C4C-CHD-C1D	2.54	125.91	122.56
2	H	302	HEM	CMC-C2C-C3C	2.54	129.43	124.68
2	G	601	HEM	C4C-CHD-C1D	2.54	125.91	122.56
2	F	302	HEM	CAA-CBA-CGA	-2.51	106.72	113.76
2	C	601	HEM	CAA-C2A-C3A	2.50	134.42	127.25
2	G	601	HEM	CHC-C4B-C3B	2.49	128.38	124.57
2	F	302	HEM	CHB-C1B-NB	2.48	127.45	124.38
2	E	601	HEM	CHB-C1B-NB	2.48	127.44	124.38
2	J	303	HEM	C4D-ND-C1D	2.48	107.63	105.07
2	G	601	HEM	C4D-ND-C1D	2.48	107.63	105.07
2	H	302	HEM	CAA-CBA-CGA	-2.46	106.87	113.76
2	B	302	HEM	CMC-C2C-C3C	2.46	129.28	124.68
2	B	302	HEM	C4B-CHC-C1C	2.43	125.77	122.56
2	J	303	HEM	C1B-NB-C4B	2.43	107.58	105.07
2	A	601	HEM	C4C-CHD-C1D	2.42	125.75	122.56
2	C	601	HEM	C3C-C4C-NC	-2.42	106.37	110.94
2	B	302	HEM	C4A-C3A-C2A	2.42	108.68	107.00
2	B	302	HEM	CMA-C3A-C2A	2.41	129.50	124.94
2	E	601	HEM	C2B-C1B-NB	-2.39	107.01	109.84
2	B	302	HEM	C4D-ND-C1D	2.39	107.54	105.07
2	C	601	HEM	C3B-C2B-C1B	2.38	108.25	106.49
2	F	302	HEM	CHC-C4B-C3B	2.35	128.16	124.57
2	C	601	HEM	C4C-CHD-C1D	2.34	125.65	122.56
2	F	302	HEM	CMA-C3A-C4A	-2.34	124.87	128.46
2	C	601	HEM	C3D-C4D-ND	-2.30	107.61	110.17
2	J	303	HEM	CMC-C2C-C3C	2.29	128.96	124.68
2	I	601	HEM	CHD-C1D-ND	2.29	126.92	124.43
2	D	303	HEM	CMC-C2C-C3C	2.28	128.94	124.68
2	C	601	HEM	CHD-C1D-ND	2.27	126.90	124.43
2	I	601	HEM	C4C-CHD-C1D	2.25	125.53	122.56
2	A	601	HEM	C3D-C4D-ND	-2.24	107.67	110.17
2	J	303	HEM	C3B-C2B-C1B	2.21	108.13	106.49
2	J	303	HEM	CBD-CAD-C3D	-2.19	106.54	112.63
2	B	302	HEM	CBD-CAD-C3D	-2.19	106.55	112.63

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	HEM	C1D-C2D-C3D	2.18	109.25	106.96
2	E	601	HEM	C4A-C3A-C2A	2.17	108.51	107.00
2	I	601	HEM	CMB-C2B-C1B	-2.16	121.74	125.04
2	D	303	HEM	CAA-CBA-CGA	-2.16	107.71	113.76
4	D	301	GOL	C3-C2-C1	-2.16	103.33	111.70
2	G	601	HEM	CMC-C2C-C3C	2.16	128.71	124.68
2	A	601	HEM	CHA-C4D-ND	2.15	127.04	124.38
2	I	601	HEM	C2D-C1D-ND	-2.12	107.34	109.88
2	G	601	HEM	CHB-C1B-NB	2.12	127.00	124.38
2	E	601	HEM	C3D-C4D-ND	-2.11	107.81	110.17
2	F	302	HEM	C4C-CHD-C1D	2.11	125.34	122.56
2	H	302	HEM	C4C-CHD-C1D	2.10	125.33	122.56
2	D	303	HEM	C4D-ND-C1D	2.09	107.24	105.07
2	G	601	HEM	CMA-C3A-C4A	-2.08	125.26	128.46
2	B	302	HEM	CBA-CAA-C2A	2.07	116.16	112.62
2	A	601	HEM	O2D-CGD-CBD	2.05	120.63	114.03
2	F	302	HEM	CHA-C4D-ND	2.04	126.90	124.38
2	D	303	HEM	C3B-C2B-C1B	2.04	108.00	106.49
2	F	302	HEM	C3D-C4D-ND	-2.03	107.91	110.17
2	D	303	HEM	C3D-C4D-ND	-2.02	107.92	110.17
2	D	303	HEM	CAB-C3B-C2B	-2.01	121.97	128.60
2	F	302	HEM	CAB-C3B-C2B	-2.00	122.00	128.60
2	B	302	HEM	CHC-C4B-C3B	2.00	127.64	124.57

There are no chirality outliers.

All (82) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	HEM	C1A-C2A-CAA-CBA
2	A	601	HEM	C3A-C2A-CAA-CBA
2	B	302	HEM	C1A-C2A-CAA-CBA
2	B	302	HEM	C3A-C2A-CAA-CBA
2	C	601	HEM	C1A-C2A-CAA-CBA
2	C	601	HEM	C3A-C2A-CAA-CBA
2	D	303	HEM	C1A-C2A-CAA-CBA
2	D	303	HEM	C3A-C2A-CAA-CBA
2	H	302	HEM	C1A-C2A-CAA-CBA
2	H	302	HEM	C3A-C2A-CAA-CBA
2	H	302	HEM	C3D-CAD-CBD-CGD
2	I	601	HEM	C1A-C2A-CAA-CBA
2	I	601	HEM	C3A-C2A-CAA-CBA
2	J	303	HEM	C1A-C2A-CAA-CBA

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
4	C	603	GOL	O1-C1-C2-C3
4	E	603	GOL	C1-C2-C3-O3
4	G	603	GOL	C1-C2-C3-O3
4	H	301	GOL	O1-C1-C2-O2
4	H	301	GOL	O1-C1-C2-C3
4	I	603	GOL	C1-C2-C3-O3
4	J	301	GOL	C1-C2-C3-O3
4	J	302	GOL	C1-C2-C3-O3
2	C	601	HEM	C2D-C3D-CAD-CBD
2	C	601	HEM	C4D-C3D-CAD-CBD
2	E	601	HEM	C3D-CAD-CBD-CGD
4	D	301	GOL	C1-C2-C3-O3
4	E	604	GOL	O1-C1-C2-C3
2	H	302	HEM	C2A-CAA-CBA-CGA
4	E	603	GOL	O2-C2-C3-O3
4	C	603	GOL	O1-C1-C2-O2
4	G	603	GOL	O2-C2-C3-O3
4	I	603	GOL	O2-C2-C3-O3
4	J	302	GOL	O2-C2-C3-O3
2	B	302	HEM	C3D-CAD-CBD-CGD
4	D	302	GOL	O2-C2-C3-O3
4	J	301	GOL	O2-C2-C3-O3
2	B	302	HEM	C4B-C3B-CAB-CBB
2	C	601	HEM	C4B-C3B-CAB-CBB
2	E	601	HEM	C4B-C3B-CAB-CBB
2	F	302	HEM	C4B-C3B-CAB-CBB
2	G	601	HEM	C4B-C3B-CAB-CBB
2	H	302	HEM	C4B-C3B-CAB-CBB
4	D	301	GOL	O1-C1-C2-O2
4	E	604	GOL	O1-C1-C2-O2
2	G	601	HEM	C2A-CAA-CBA-CGA
2	J	303	HEM	C3A-C2A-CAA-CBA
4	F	301	GOL	O1-C1-C2-C3
2	H	302	HEM	CAA-CBA-CGA-O1A
2	A	601	HEM	CAD-CBD-CGD-O1D
2	C	601	HEM	CAD-CBD-CGD-O1D
2	D	303	HEM	CAA-CBA-CGA-O1A
2	D	303	HEM	CAA-CBA-CGA-O2A
2	H	302	HEM	CAA-CBA-CGA-O2A
2	C	601	HEM	CAD-CBD-CGD-O2D
2	I	601	HEM	CAA-CBA-CGA-O2A
2	I	601	HEM	CAA-CBA-CGA-O1A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	B	302	HEM	CAD-CBD-CGD-O1D
2	D	303	HEM	CAD-CBD-CGD-O2D
2	A	601	HEM	CAD-CBD-CGD-O2D
2	B	302	HEM	CAD-CBD-CGD-O2D
2	D	303	HEM	CAD-CBD-CGD-O1D
2	J	303	HEM	CAD-CBD-CGD-O2D
4	D	301	GOL	O1-C1-C2-C3
2	F	302	HEM	CAD-CBD-CGD-O2D
2	I	601	HEM	CAD-CBD-CGD-O2D
2	G	601	HEM	CAD-CBD-CGD-O2D
2	J	303	HEM	CAD-CBD-CGD-O1D
2	F	302	HEM	CAD-CBD-CGD-O1D
2	C	601	HEM	CAA-CBA-CGA-O2A
2	I	601	HEM	CAD-CBD-CGD-O1D
2	G	601	HEM	CAD-CBD-CGD-O1D
4	A	604	GOL	O1-C1-C2-C3
4	D	302	GOL	C1-C2-C3-O3
4	E	603	GOL	O1-C1-C2-C3
2	H	302	HEM	CAD-CBD-CGD-O2D
2	J	303	HEM	CAA-CBA-CGA-O2A
2	C	601	HEM	CAA-CBA-CGA-O1A
2	J	303	HEM	CAA-CBA-CGA-O1A
2	A	601	HEM	CAA-CBA-CGA-O1A
2	G	601	HEM	CAA-CBA-CGA-O1A
2	G	601	HEM	CAA-CBA-CGA-O2A
2	B	302	HEM	CAA-CBA-CGA-O2A

There are no ring outliers.

17 monomers are involved in 36 short contacts:

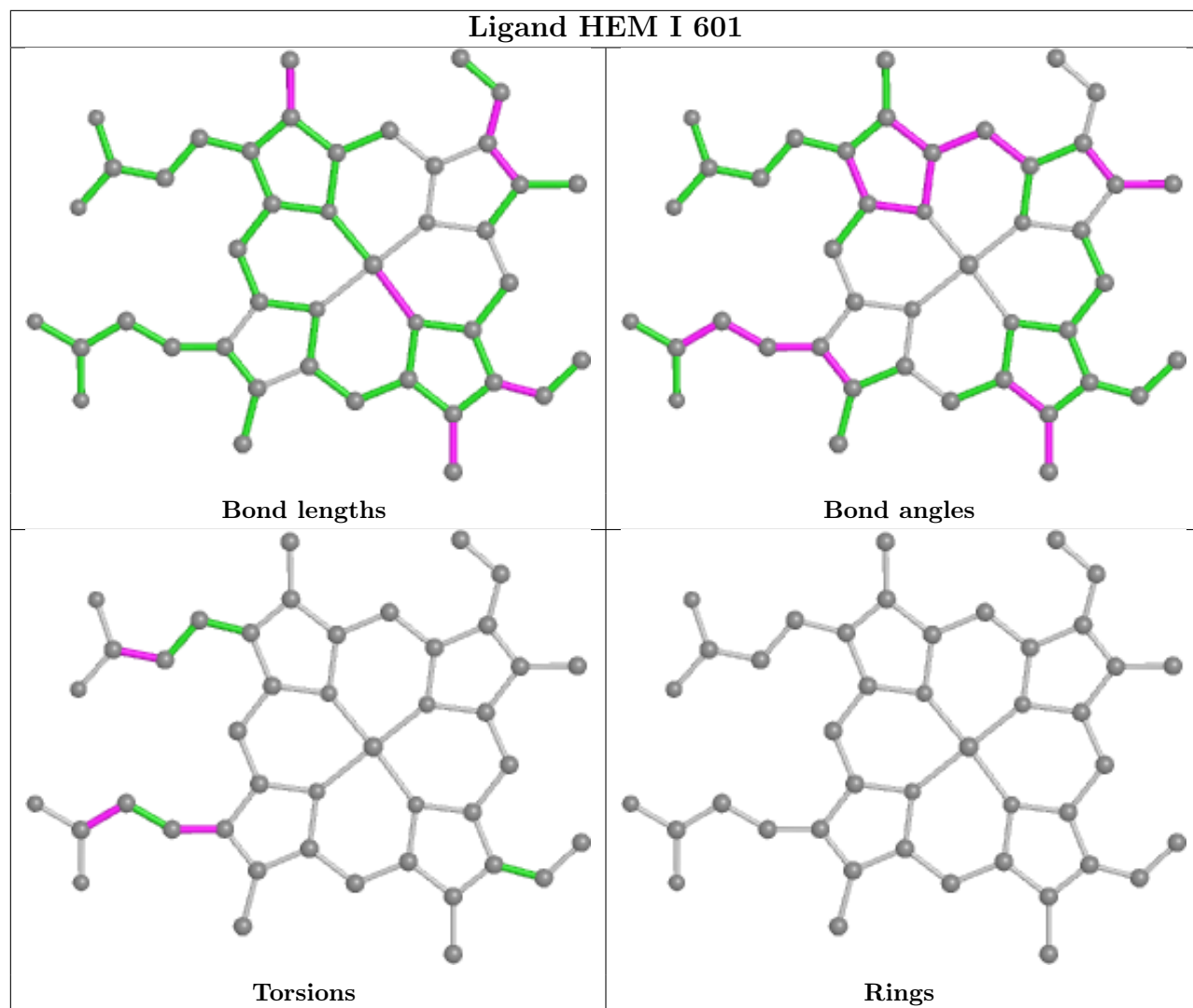
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	301	GOL	2	0
4	E	603	GOL	1	0
2	I	601	HEM	2	0
2	C	601	HEM	4	0
2	G	601	HEM	2	0
4	G	603	GOL	2	0
4	A	604	GOL	1	0
2	E	601	HEM	1	0
2	H	302	HEM	2	0
4	B	301	GOL	1	0
4	D	302	GOL	3	0

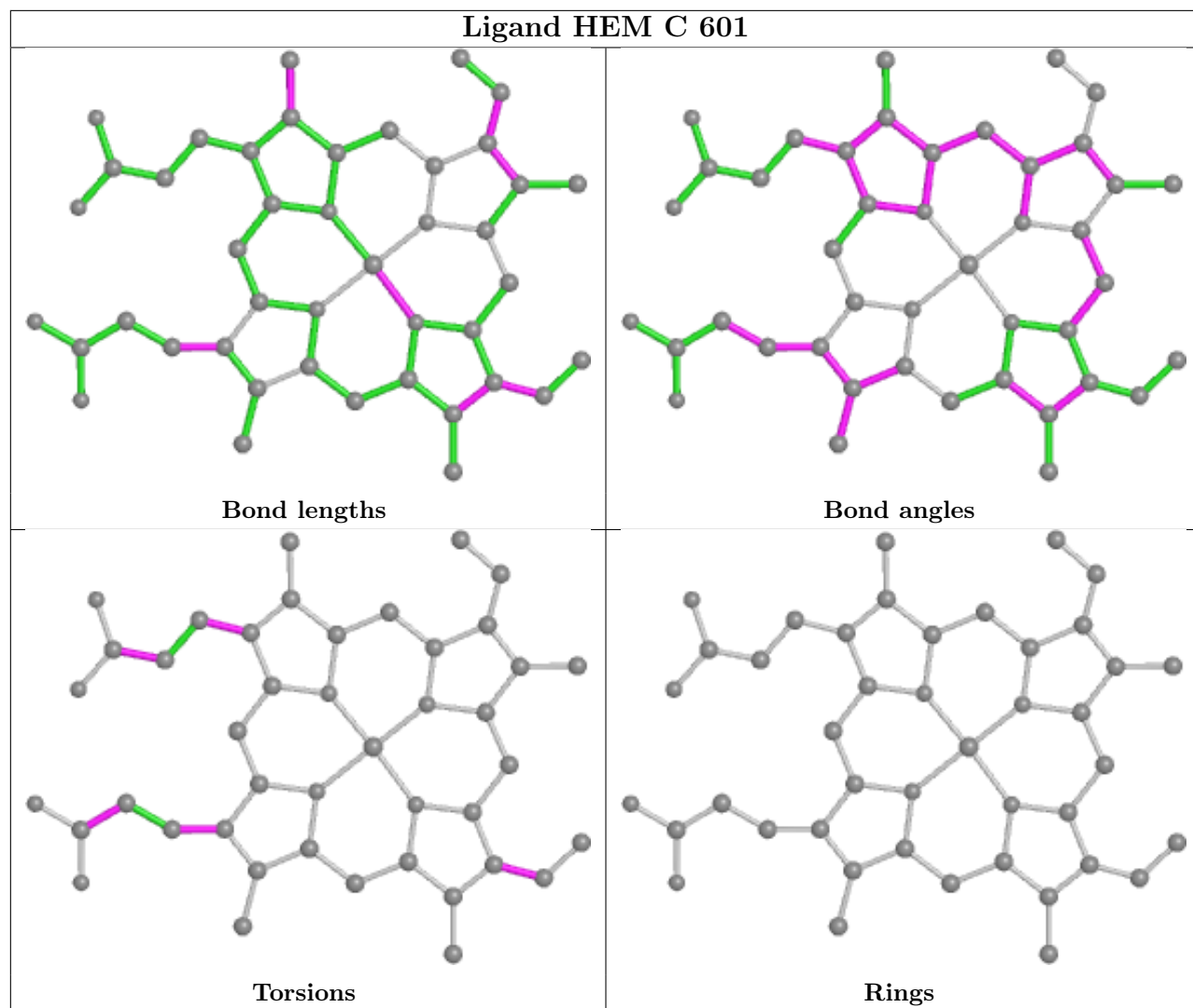
Continued on next page...

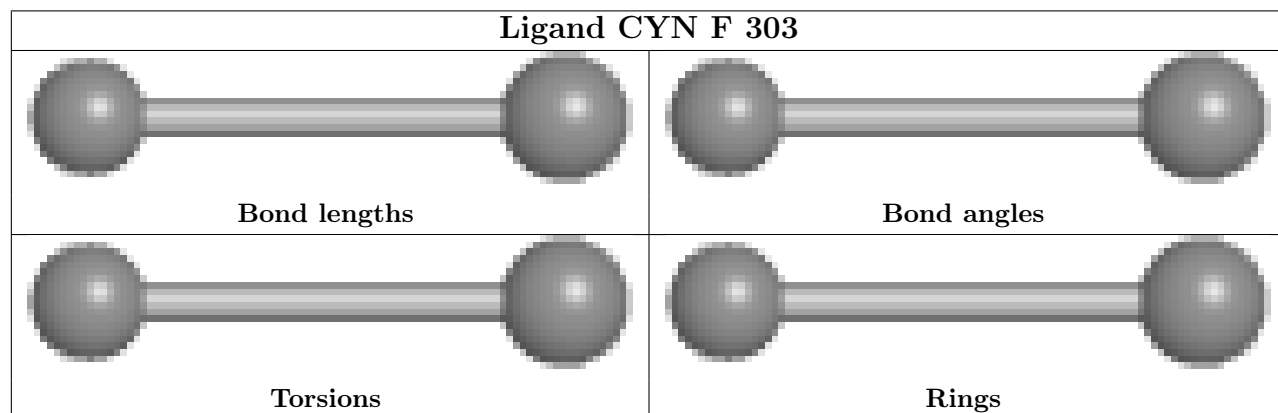
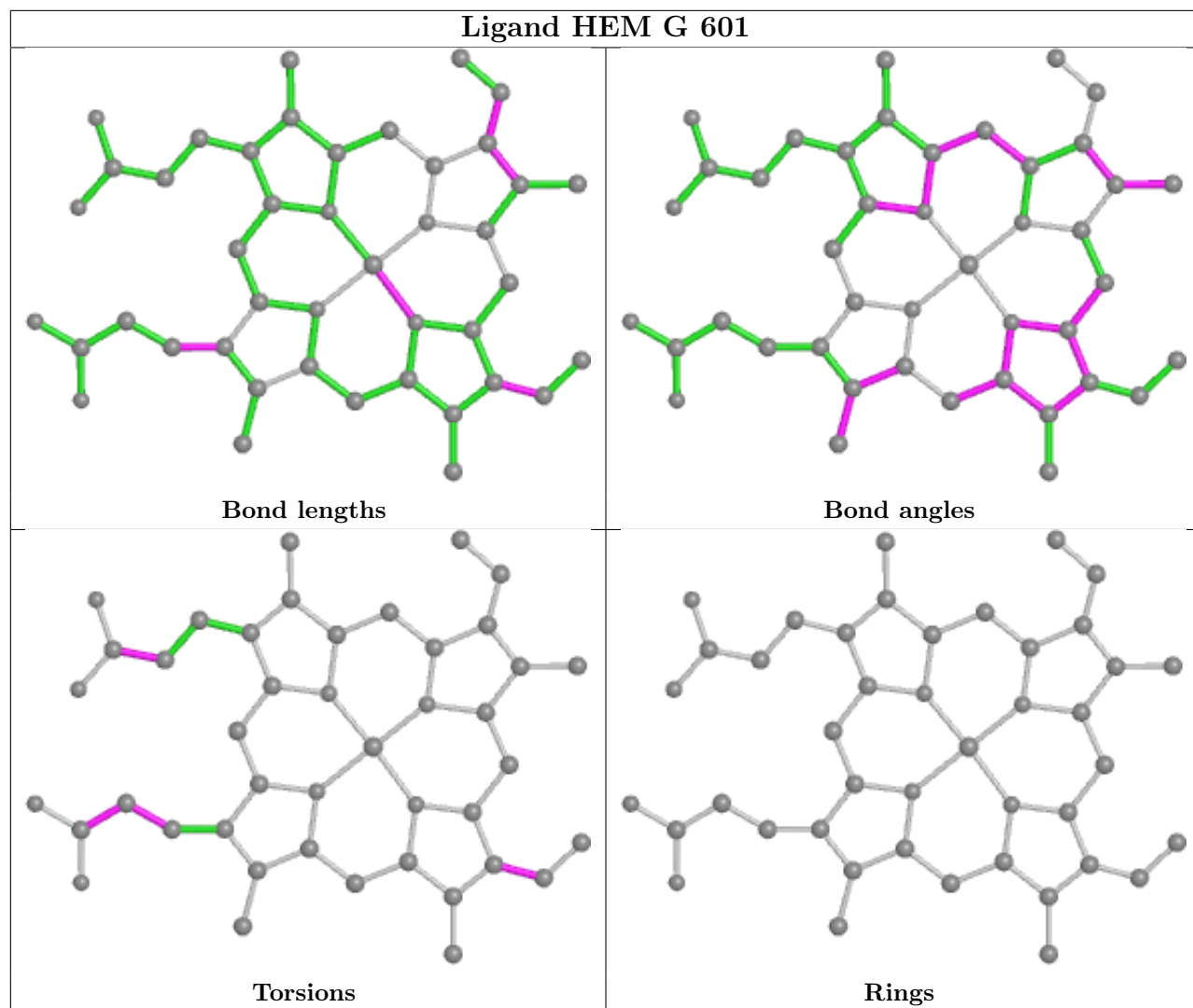
Continued from previous page...

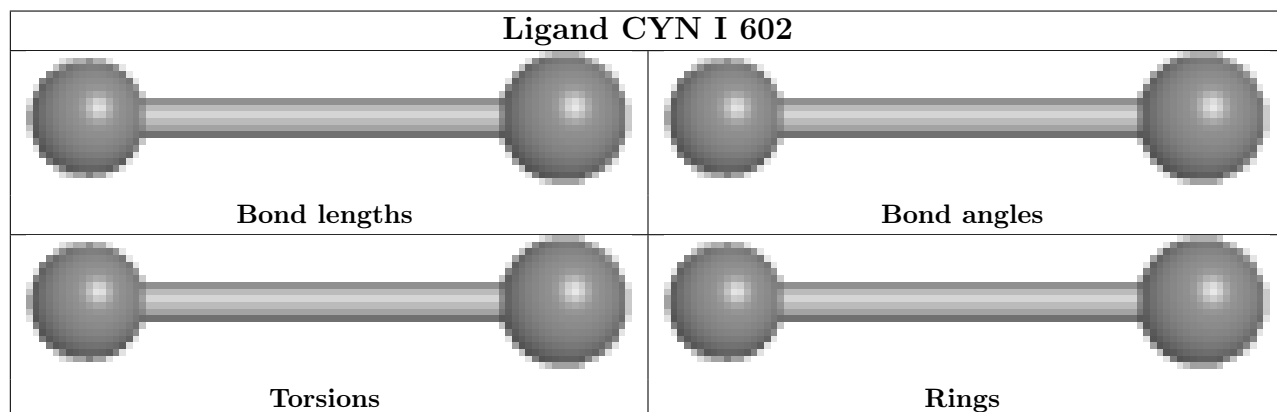
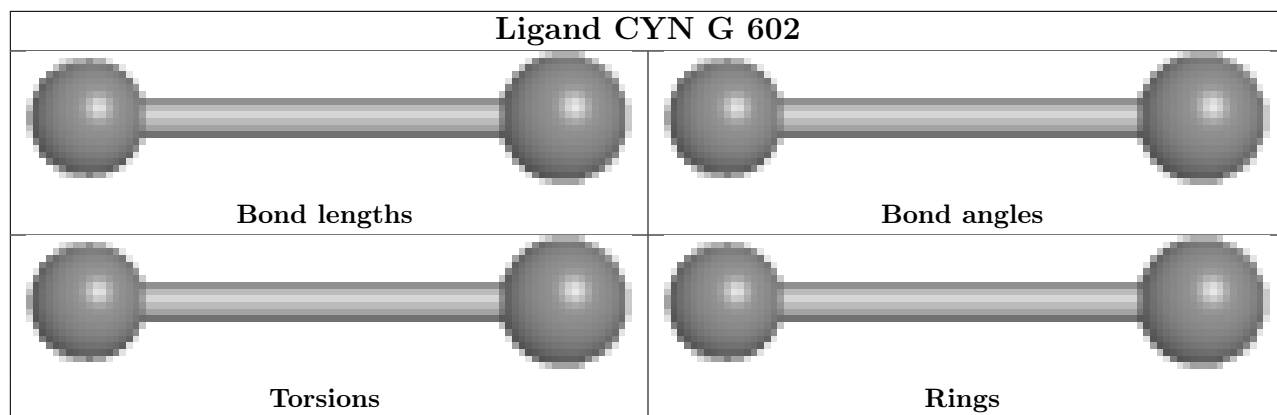
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	303	HEM	3	0
2	J	303	HEM	3	0
4	A	603	GOL	3	0
4	J	302	GOL	1	0
2	B	302	HEM	3	0
2	F	302	HEM	2	0

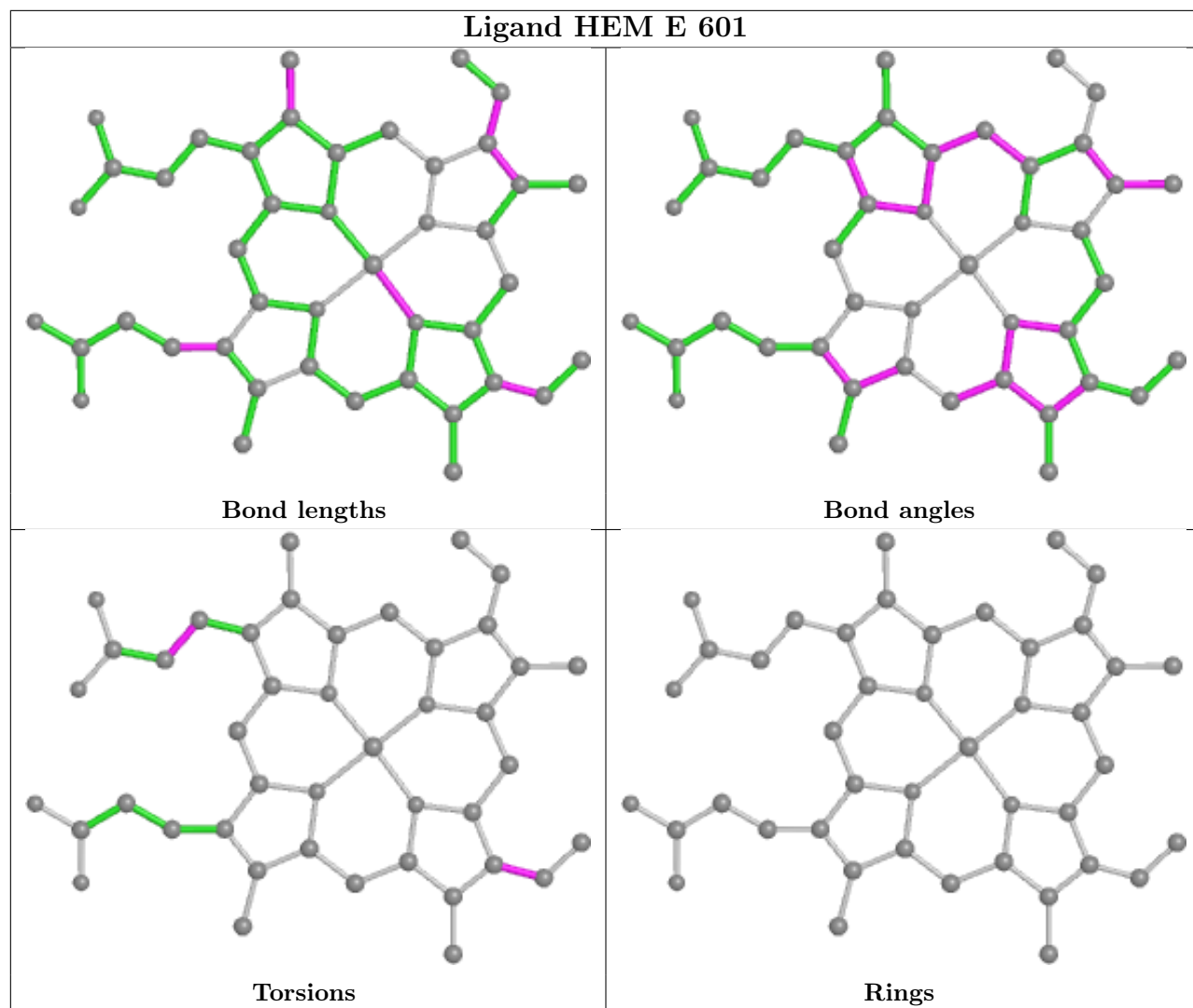
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

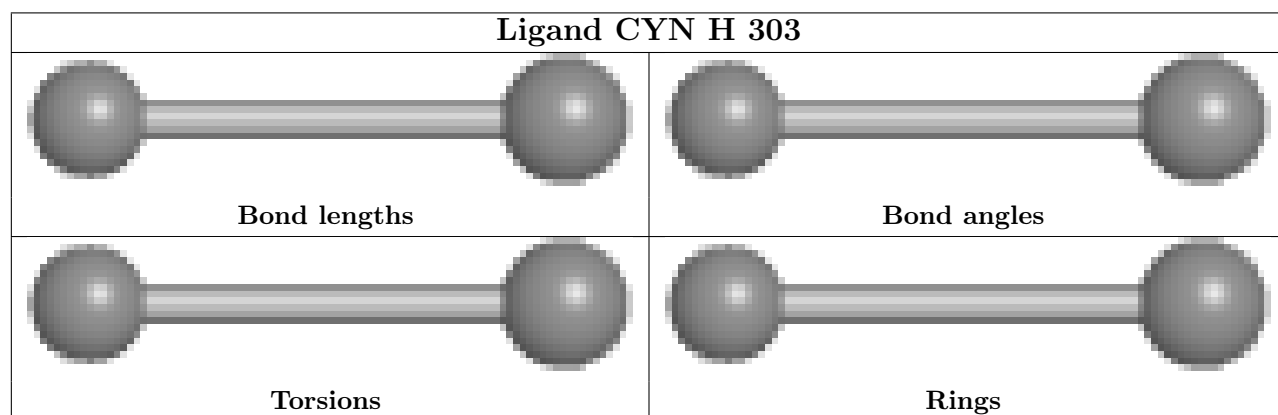
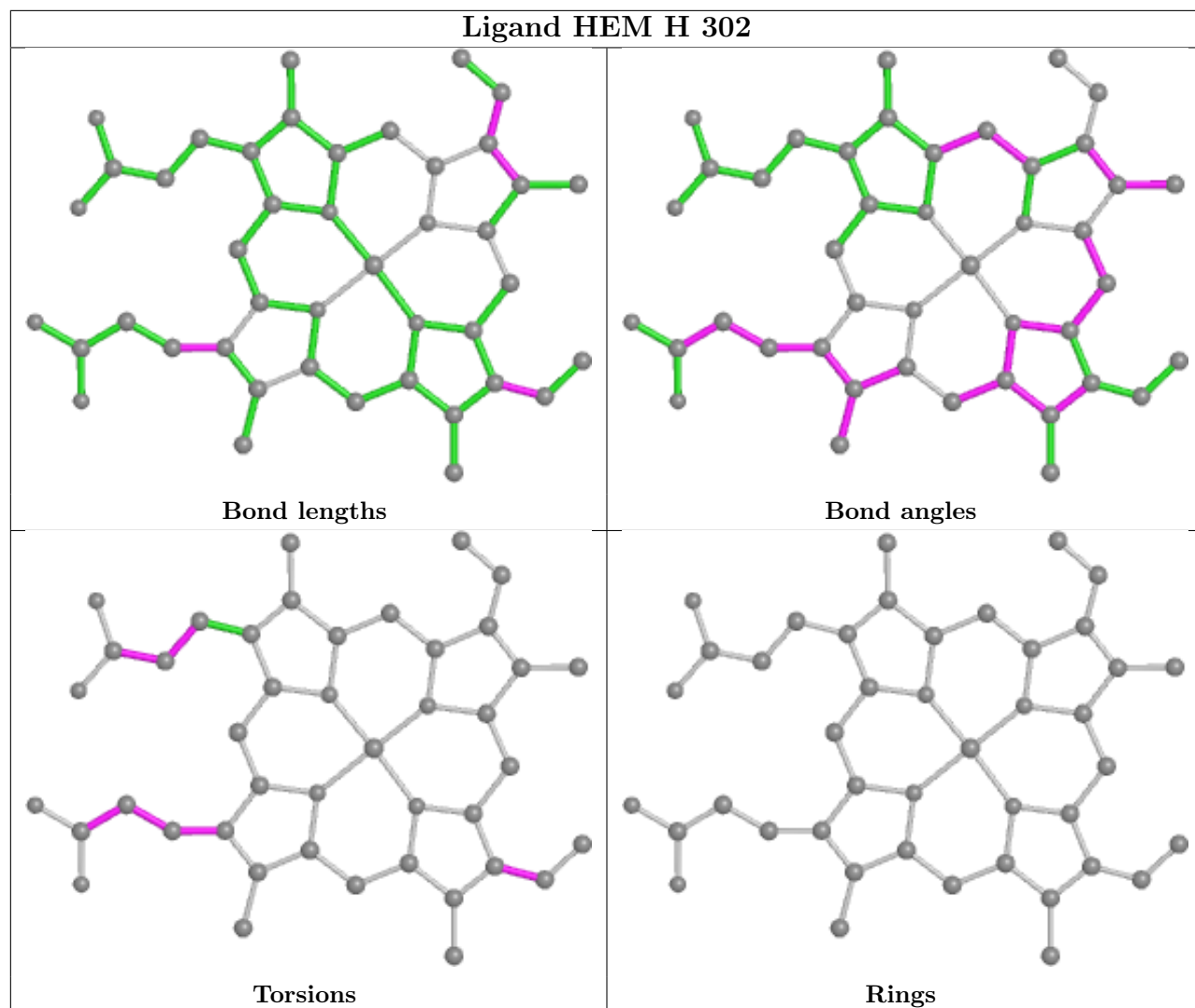


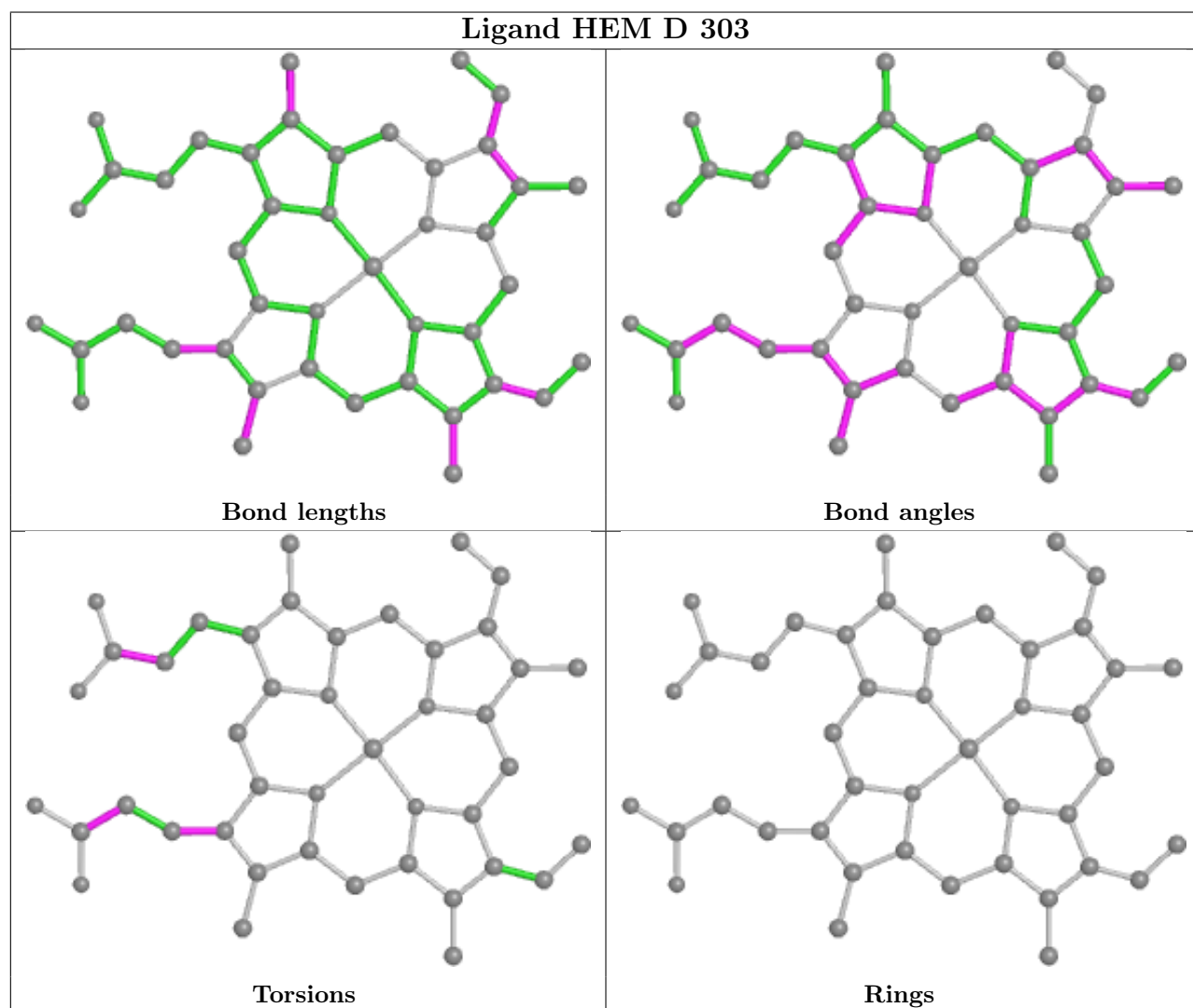
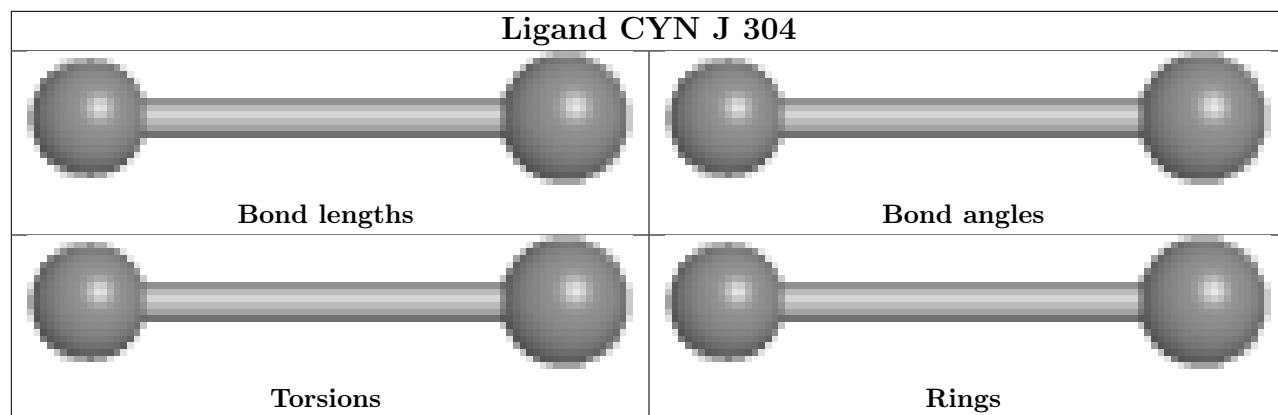


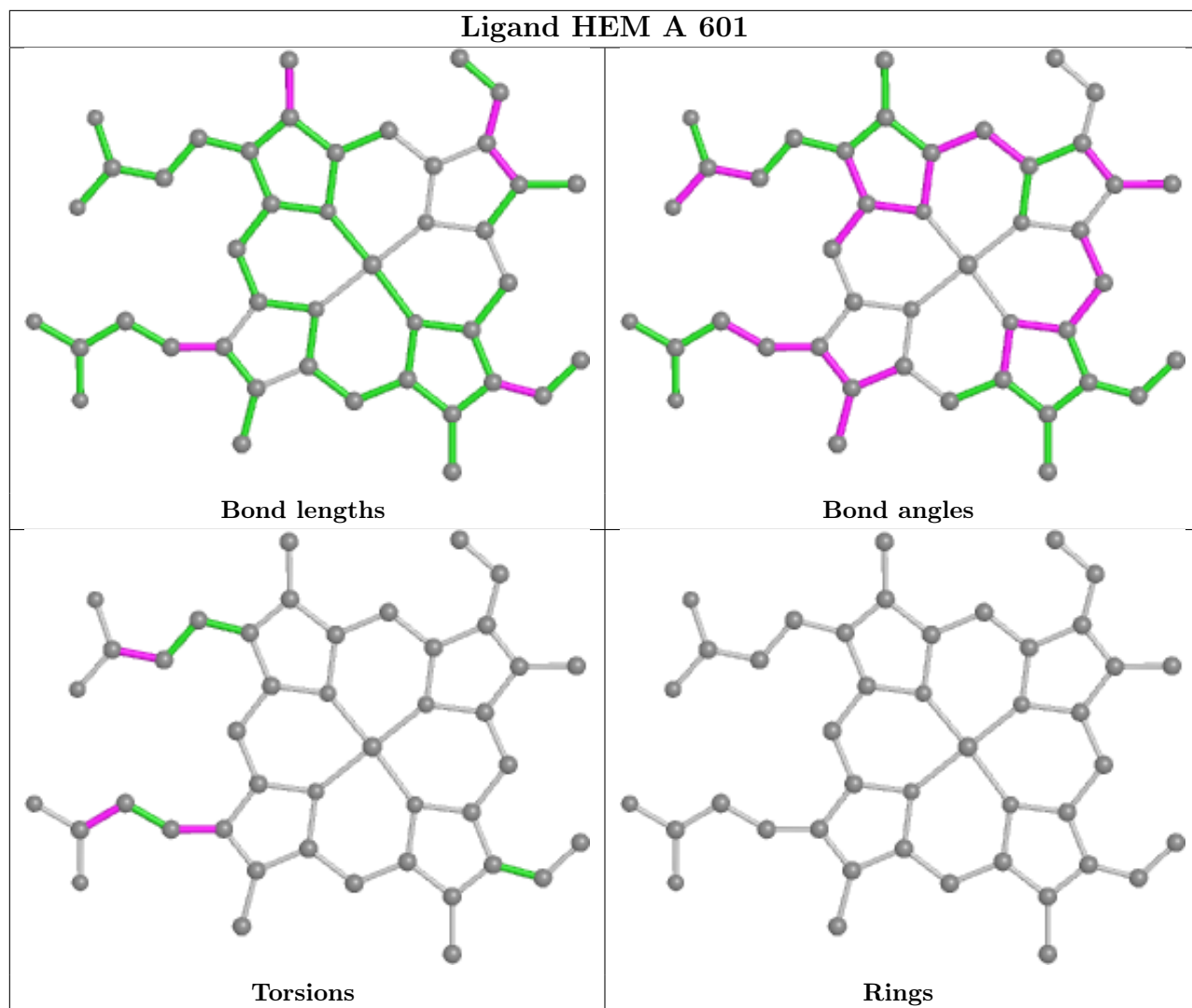


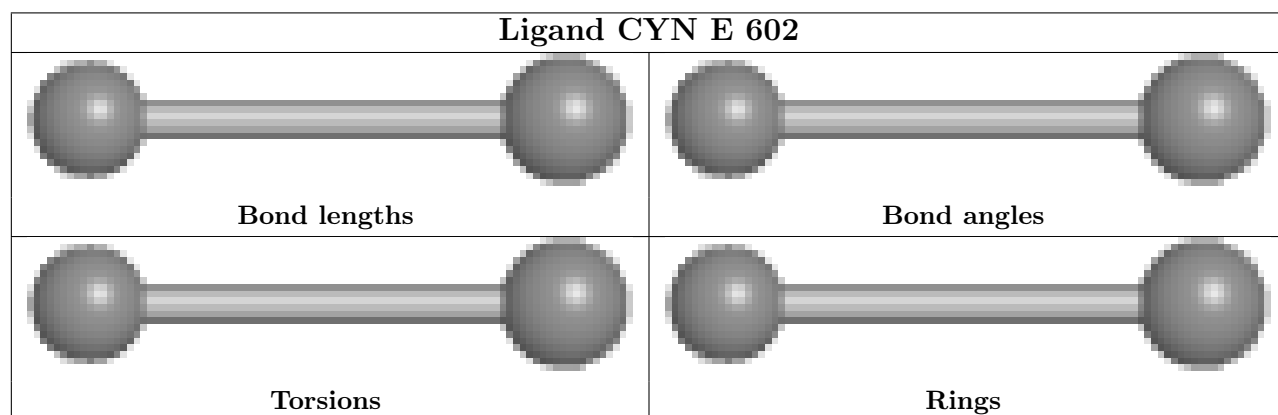
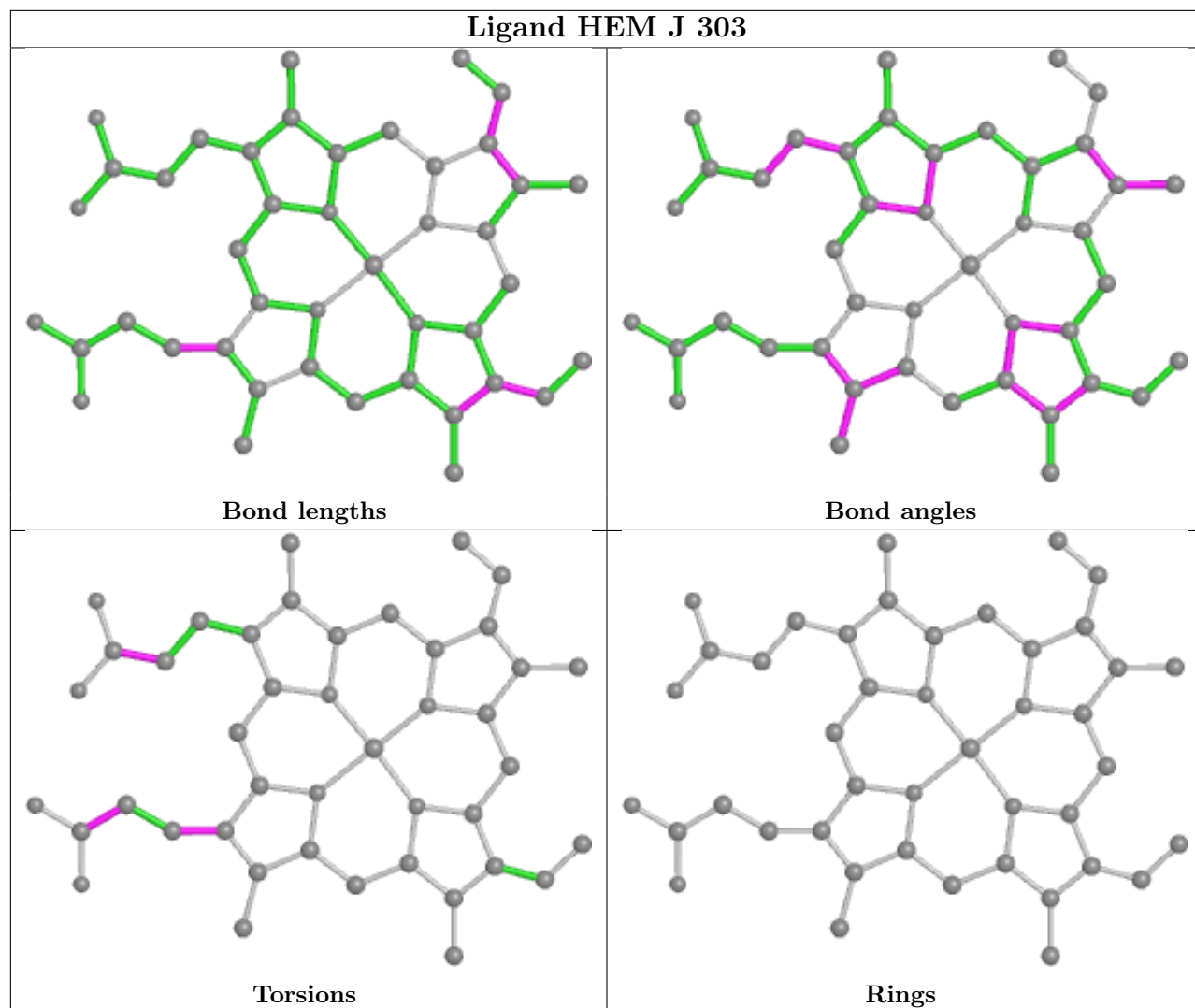


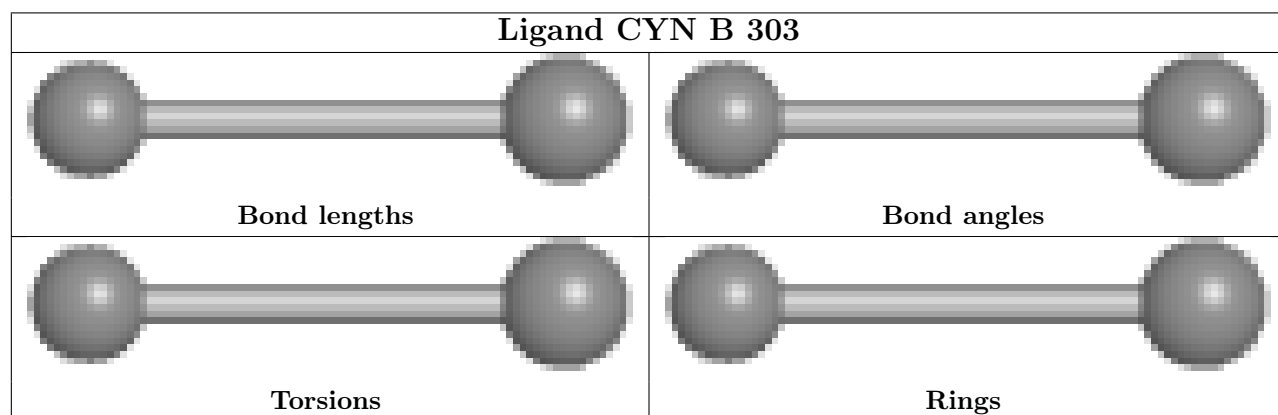
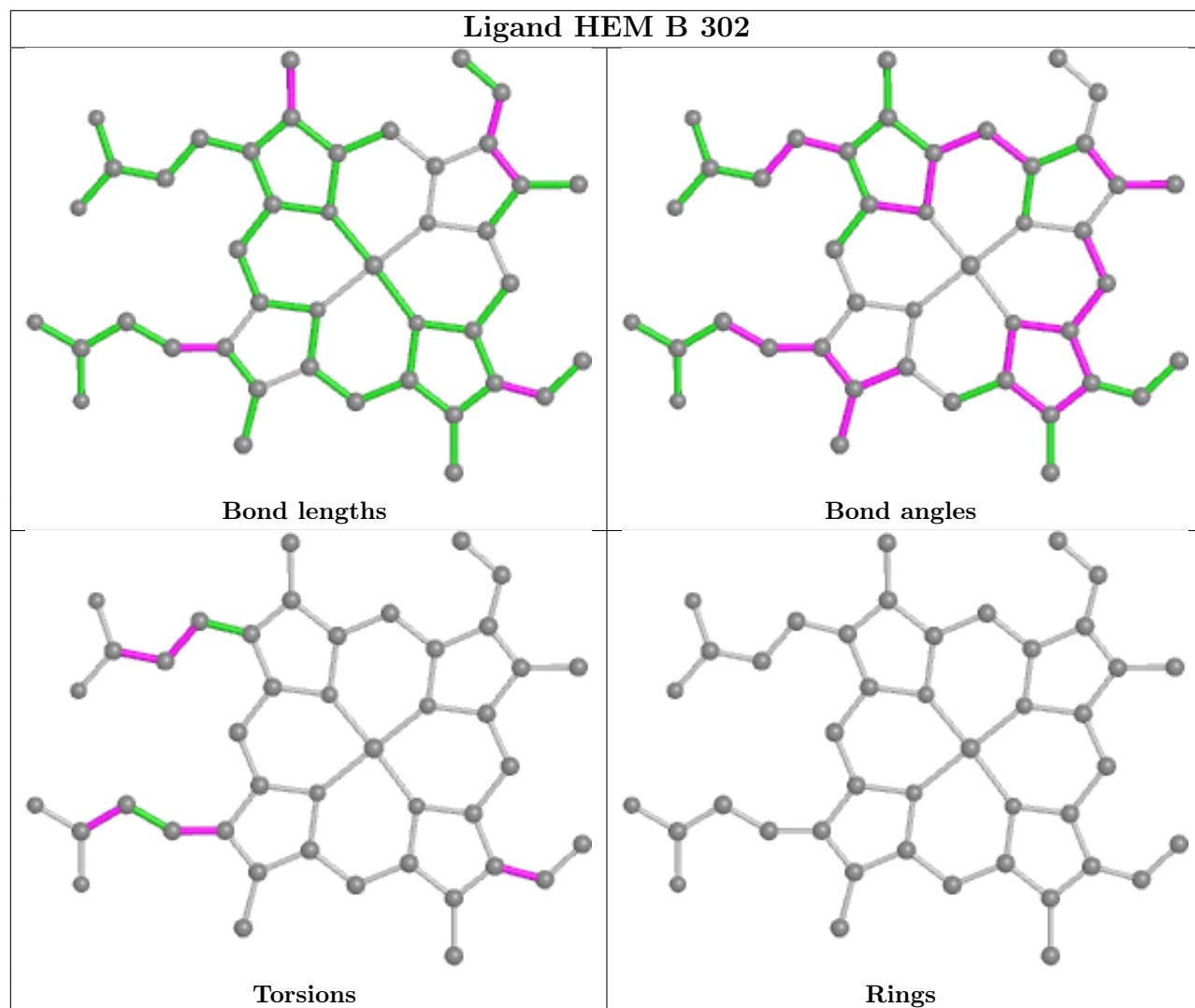


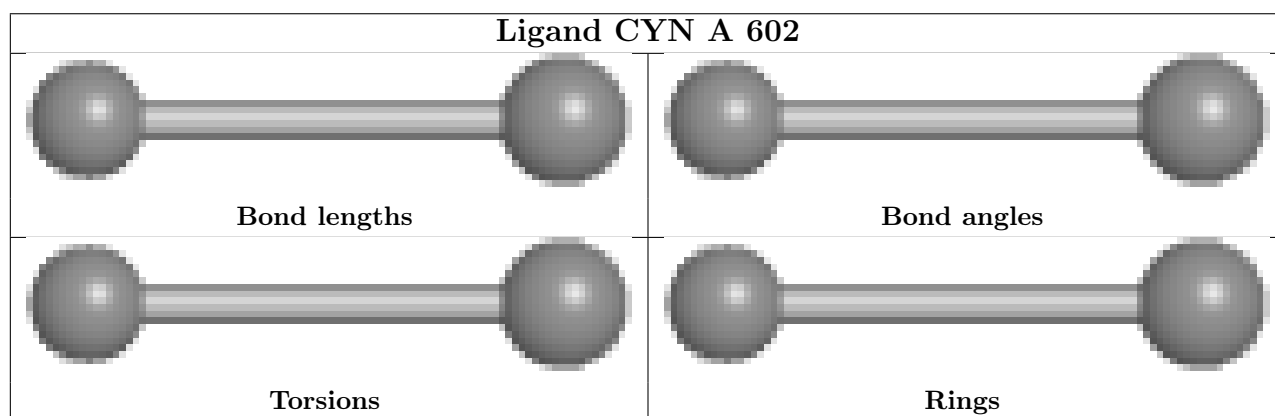
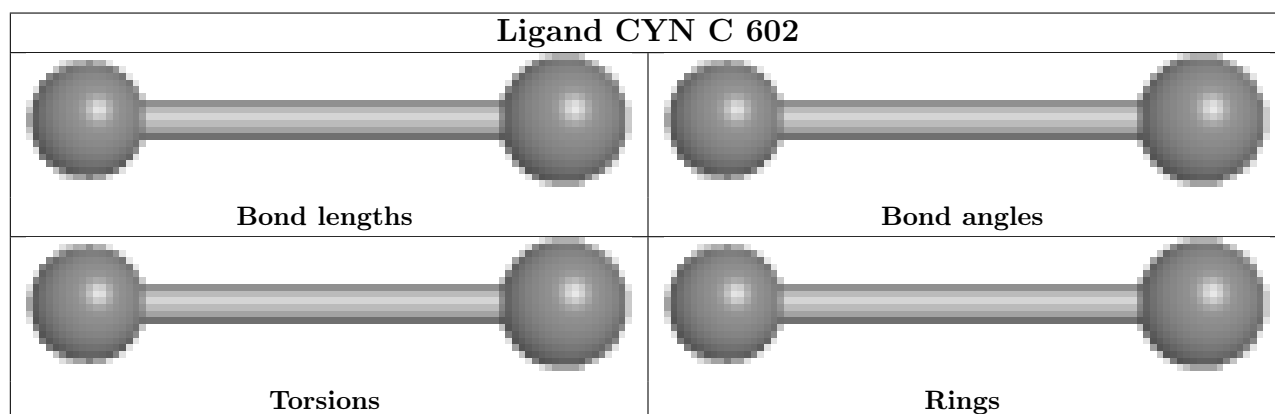
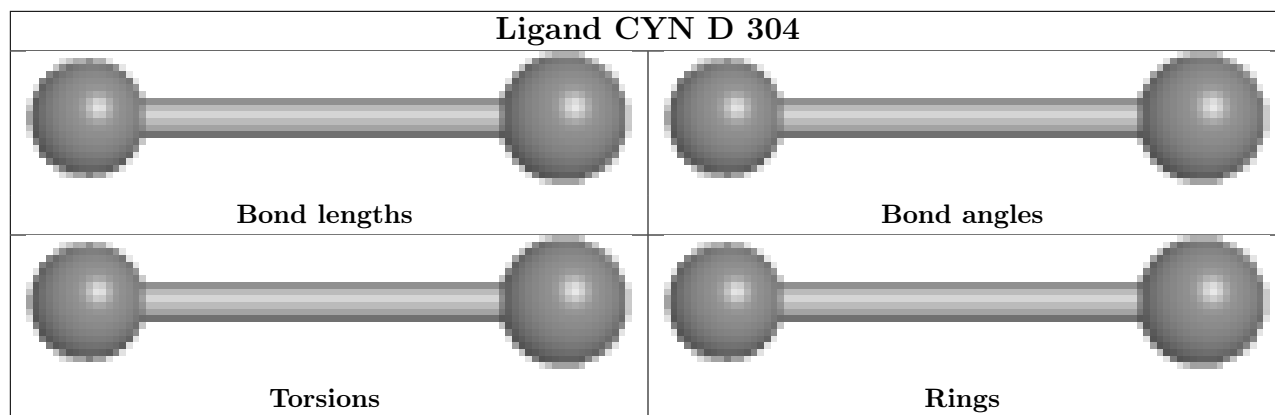


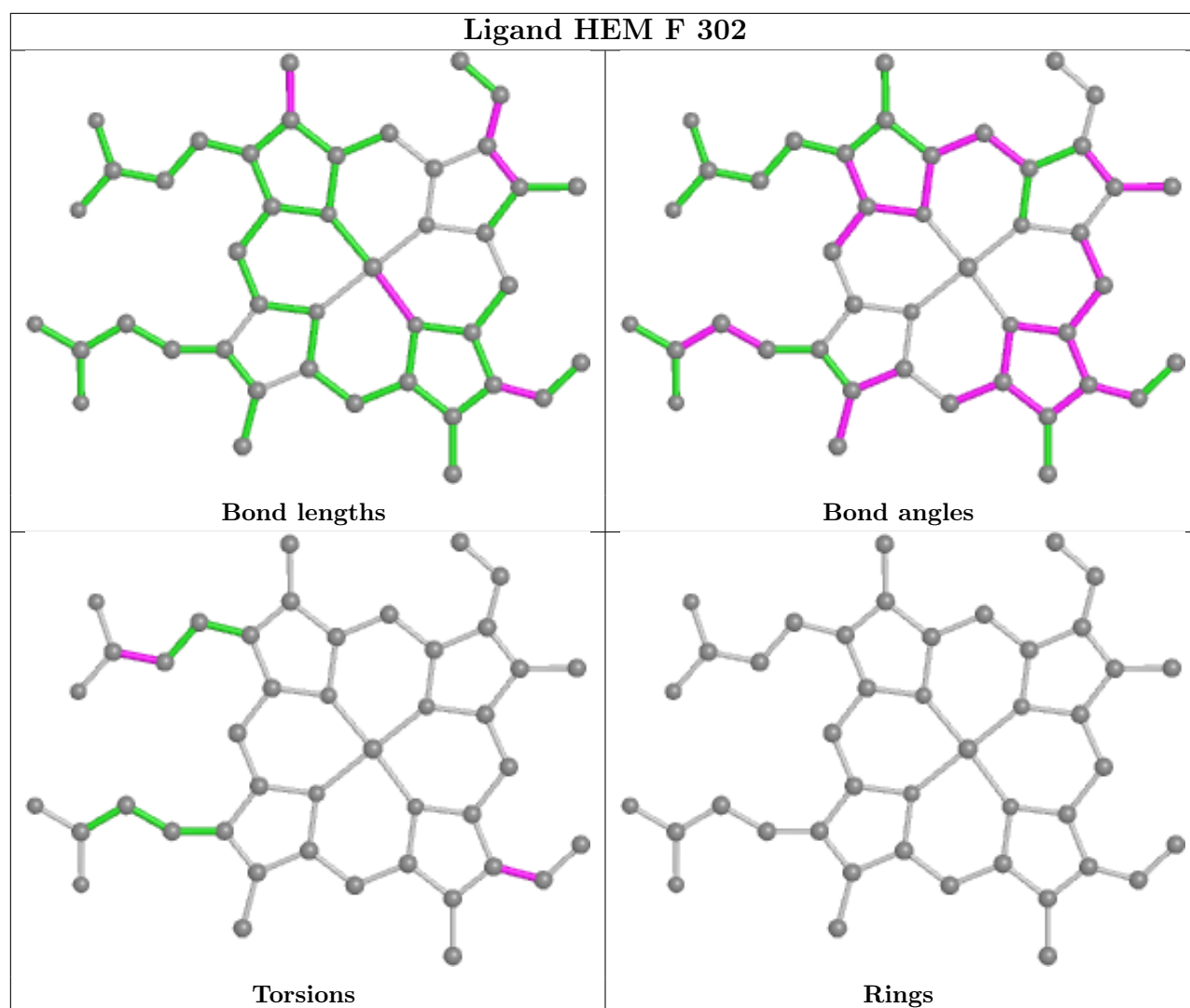












5.7 Other polymers [i](#)

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	253/273 (92%)	0.83	25 (9%) 7 5	51, 92, 208, 288	0
1	B	253/273 (92%)	1.21	54 (21%) 0 0	56, 113, 225, 261	0
1	C	251/273 (91%)	1.12	40 (15%) 1 1	60, 112, 228, 313	0
1	D	253/273 (92%)	0.72	19 (7%) 14 12	53, 89, 196, 255	0
1	E	251/273 (91%)	1.36	56 (22%) 0 0	68, 112, 240, 277	0
1	F	251/273 (91%)	1.50	60 (23%) 0 0	66, 137, 246, 305	0
1	G	249/273 (91%)	1.31	55 (22%) 0 0	69, 136, 231, 309	0
1	H	249/273 (91%)	1.93	85 (34%) 0 0	73, 134, 250, 339	0
1	I	251/273 (91%)	2.14	81 (32%) 0 0	73, 168, 266, 333	0
1	J	251/273 (91%)	2.05	82 (32%) 0 0	77, 159, 279, 356	0
All	All	2512/2730 (92%)	1.42	557 (22%) 0 0	51, 119, 247, 356	0

All (557) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	85	GLY	16.0
1	I	274	VAL	14.2
1	I	51	ILE	13.4
1	H	274	VAL	13.3
1	J	51	ILE	12.3
1	J	62	PHE	12.2
1	I	41	TRP	11.7
1	F	273	LEU	11.6
1	E	86	GLY	11.5
1	I	39	LEU	11.5
1	I	62	PHE	11.2
1	J	34	LEU	11.1
1	I	50	GLY	11.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	I	273	LEU	10.6
1	H	116	GLY	10.5
1	C	116	GLY	10.3
1	F	274	VAL	10.2
1	C	34	LEU	9.7
1	J	274	VAL	9.6
1	H	59	TYR	9.4
1	G	274	VAL	9.4
1	J	52	GLY	9.4
1	H	117	THR	9.1
1	I	32	LEU	9.1
1	E	274	VAL	9.1
1	I	98	SER	9.0
1	I	121	LEU	8.9
1	J	41	TRP	8.9
1	I	30	TRP	8.9
1	I	48	LEU	8.7
1	J	272	GLU	8.6
1	A	273	LEU	8.6
1	H	62	PHE	8.6
1	H	125	PHE	8.5
1	I	110	LEU	8.4
1	I	111	ILE	8.3
1	J	115	ALA	8.3
1	I	52	GLY	8.2
1	F	99	ASN	8.1
1	J	32	LEU	8.1
1	F	34	LEU	8.1
1	J	116	GLY	8.1
1	G	273	LEU	7.9
1	E	273	LEU	7.8
1	J	121	LEU	7.7
1	G	272	GLU	7.7
1	F	37	TRP	7.7
1	C	115	ALA	7.7
1	F	272	GLU	7.6
1	J	27	VAL	7.6
1	J	48	LEU	7.6
1	A	269	LEU	7.5
1	J	88	PHE	7.5
1	H	51	ILE	7.3
1	H	32	LEU	7.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	I	267	GLN	7.3
1	B	214	HIS	7.3
1	H	96	GLY	7.3
1	F	52	GLY	7.2
1	I	40	ASP	7.1
1	E	34	LEU	7.1
1	I	34	LEU	7.1
1	G	271	SER	7.1
1	H	61	LEU	7.0
1	H	34	LEU	7.0
1	B	269	LEU	7.0
1	J	77	ALA	6.8
1	H	85	GLY	6.8
1	H	28	GLY	6.7
1	H	86	GLY	6.7
1	I	53	GLN	6.6
1	H	112	ARG	6.6
1	F	36	THR	6.5
1	J	111	ILE	6.5
1	J	124	ILE	6.5
1	F	269	LEU	6.5
1	J	271	SER	6.5
1	J	37	TRP	6.5
1	I	100	ALA	6.4
1	B	37	TRP	6.4
1	I	115	ALA	6.4
1	I	86	GLY	6.4
1	I	97	THR	6.3
1	E	84	ARG	6.3
1	J	49	LEU	6.2
1	A	274	VAL	6.2
1	J	270	GLN	6.1
1	J	39	LEU	6.0
1	F	111	ILE	6.0
1	B	62	PHE	6.0
1	J	81	VAL	6.0
1	F	98	SER	6.0
1	J	273	LEU	6.0
1	I	272	GLU	6.0
1	E	62	PHE	6.0
1	I	84	ARG	6.0
1	J	85	GLY	5.9

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	E	97	THR	5.9
1	B	274	VAL	5.9
1	B	60	ASP	5.8
1	H	84	ARG	5.8
1	H	270	GLN	5.8
1	B	272	GLU	5.8
1	E	51	ILE	5.8
1	C	110	LEU	5.8
1	H	273	LEU	5.8
1	J	266	LEU	5.8
1	I	271	SER	5.8
1	J	125	PHE	5.8
1	I	88	PHE	5.8
1	B	51	ILE	5.8
1	B	111	ILE	5.8
1	J	117	THR	5.8
1	C	37	TRP	5.8
1	H	37	TRP	5.8
1	H	118	ALA	5.7
1	C	112	ARG	5.7
1	F	51	ILE	5.7
1	B	81	VAL	5.7
1	J	59	TYR	5.6
1	F	112	ARG	5.6
1	J	25	PHE	5.6
1	B	121	LEU	5.6
1	J	113	ASP	5.6
1	B	84	ARG	5.6
1	F	62	PHE	5.5
1	C	117	THR	5.5
1	J	118	ALA	5.5
1	G	61	LEU	5.5
1	E	39	LEU	5.4
1	E	41	TRP	5.4
1	I	61	LEU	5.4
1	I	37	TRP	5.4
1	H	63	LEU	5.3
1	J	74	VAL	5.3
1	H	124	ILE	5.3
1	I	49	LEU	5.2
1	J	120	HIS	5.2
1	H	115	ALA	5.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	39	LEU	5.2
1	I	54	ASP	5.2
1	C	99	ASN	5.2
1	E	267	GLN	5.2
1	A	271	SER	5.2
1	G	39	LEU	5.2
1	H	66	LEU	5.1
1	I	33	ASP	5.1
1	G	51	ILE	5.1
1	J	269	LEU	5.1
1	F	266	LEU	5.1
1	B	86	GLY	5.1
1	I	74	VAL	5.1
1	J	61	LEU	5.0
1	C	62	PHE	5.0
1	H	113	ASP	5.0
1	B	110	LEU	5.0
1	D	273	LEU	5.0
1	E	270	GLN	5.0
1	H	97	THR	5.0
1	J	265	ARG	5.0
1	H	111	ILE	5.0
1	H	30	TRP	5.0
1	B	266	LEU	4.9
1	B	114	GLU	4.9
1	J	112	ARG	4.9
1	G	34	LEU	4.9
1	I	266	LEU	4.9
1	H	80	ARG	4.9
1	C	32	LEU	4.9
1	I	99	ASN	4.8
1	J	126	LEU	4.8
1	H	83	GLU	4.8
1	I	66	LEU	4.8
1	I	269	LEU	4.8
1	E	268	GLU	4.8
1	H	88	PHE	4.8
1	G	124	ILE	4.8
1	J	56	PRO	4.7
1	I	125	PHE	4.7
1	G	36	THR	4.7
1	J	69	ASP	4.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	120	HIS	4.6
1	H	52	GLY	4.6
1	B	273	LEU	4.6
1	J	50	GLY	4.6
1	F	271	SER	4.6
1	G	267	GLN	4.6
1	J	267	GLN	4.6
1	I	268	GLU	4.6
1	G	41	TRP	4.6
1	C	85	GLY	4.6
1	H	27	VAL	4.6
1	I	116	GLY	4.5
1	J	36	THR	4.5
1	G	266	LEU	4.5
1	E	121	LEU	4.5
1	E	112	ARG	4.5
1	A	272	GLU	4.5
1	F	48	LEU	4.5
1	I	126	LEU	4.5
1	B	271	SER	4.5
1	E	271	SER	4.5
1	G	114	GLU	4.5
1	I	25	PHE	4.5
1	I	79	LYS	4.5
1	B	48	LEU	4.5
1	H	39	LEU	4.5
1	J	119	ARG	4.4
1	F	27	VAL	4.4
1	I	270	GLN	4.4
1	J	35	LYS	4.4
1	J	55	GLN	4.4
1	J	84	ARG	4.4
1	J	268	GLU	4.4
1	A	22	ILE	4.4
1	H	48	LEU	4.4
1	J	63	LEU	4.4
1	F	47	THR	4.4
1	C	41	TRP	4.3
1	C	98	SER	4.3
1	J	54	ASP	4.3
1	H	265	ARG	4.3
1	J	46	ARG	4.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	41	TRP	4.3
1	B	32	LEU	4.3
1	B	96	GLY	4.3
1	E	38	ALA	4.3
1	F	270	GLN	4.3
1	G	270	GLN	4.3
1	J	53	GLN	4.2
1	E	52	GLY	4.2
1	H	98	SER	4.2
1	F	100	ALA	4.1
1	I	102	GLN	4.1
1	G	67	GLU	4.1
1	J	86	GLY	4.1
1	D	215	ILE	4.1
1	H	121	LEU	4.0
1	B	39	LEU	4.0
1	I	93	ARG	4.0
1	B	120	HIS	4.0
1	E	264	ALA	4.0
1	E	111	ILE	3.9
1	F	65	ARG	3.9
1	F	119	ARG	3.9
1	G	50	GLY	3.9
1	D	100	ALA	3.9
1	H	81	VAL	3.9
1	H	268	GLU	3.9
1	F	32	LEU	3.9
1	F	125	PHE	3.9
1	A	212	ASP	3.8
1	I	31	ASP	3.8
1	C	97	THR	3.8
1	B	264	ALA	3.8
1	I	120	HIS	3.8
1	H	36	THR	3.8
1	D	99	ASN	3.8
1	D	274	VAL	3.8
1	F	70	ASP	3.8
1	D	214	HIS	3.8
1	G	30	TRP	3.8
1	J	60	ASP	3.7
1	E	36	THR	3.7
1	E	61	LEU	3.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	40	ASP	3.7
1	H	74	VAL	3.7
1	B	68	PRO	3.7
1	F	97	THR	3.7
1	C	121	LEU	3.7
1	B	267	GLN	3.7
1	C	119	ARG	3.7
1	F	50	GLY	3.7
1	F	46	ARG	3.7
1	G	97	THR	3.7
1	G	217	GLY	3.7
1	B	78	ILE	3.7
1	E	68	PRO	3.7
1	A	214	HIS	3.6
1	J	38	ALA	3.6
1	B	270	GLN	3.6
1	H	114	GLU	3.6
1	J	94	VAL	3.6
1	H	29	THR	3.6
1	I	113	ASP	3.6
1	F	92	PHE	3.6
1	G	121	LEU	3.6
1	J	106	ALA	3.6
1	I	60	ASP	3.6
1	A	213	PRO	3.6
1	I	58	SER	3.6
1	E	35	LYS	3.6
1	H	65	ARG	3.6
1	E	114	GLU	3.6
1	E	125	PHE	3.6
1	H	43	ASP	3.5
1	I	83	GLU	3.5
1	C	66	LEU	3.5
1	F	126	LEU	3.5
1	B	61	LEU	3.5
1	B	268	GLU	3.5
1	G	269	LEU	3.5
1	B	119	ARG	3.5
1	E	106	ALA	3.5
1	J	122	SER	3.5
1	F	43	ASP	3.5
1	H	49	LEU	3.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	E	49	LEU	3.5
1	H	119	ARG	3.5
1	H	109	GLY	3.4
1	H	122	SER	3.4
1	I	44	THR	3.4
1	C	88	PHE	3.4
1	E	85	GLY	3.4
1	A	267	GLN	3.4
1	B	35	LYS	3.4
1	H	94	VAL	3.4
1	J	89	ASP	3.4
1	I	65	ARG	3.4
1	F	49	LEU	3.3
1	E	30	TRP	3.3
1	G	87	GLY	3.3
1	I	56	PRO	3.3
1	I	112	ARG	3.3
1	F	54	ASP	3.3
1	F	267	GLN	3.3
1	H	71	ARG	3.3
1	A	266	LEU	3.3
1	H	60	ASP	3.3
1	C	118	ALA	3.3
1	F	69	ASP	3.3
1	J	98	SER	3.3
1	I	81	VAL	3.3
1	F	39	LEU	3.3
1	A	270	GLN	3.3
1	H	95	ALA	3.2
1	E	83	GLU	3.2
1	E	88	PHE	3.2
1	B	41	TRP	3.2
1	G	216	ILE	3.2
1	I	96	GLY	3.2
1	I	94	VAL	3.2
1	G	32	LEU	3.2
1	H	55	GLN	3.2
1	J	30	TRP	3.2
1	J	114	GLU	3.2
1	A	25	PHE	3.1
1	C	35	LYS	3.1
1	A	34	LEU	3.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	F	121	LEU	3.1
1	E	269	LEU	3.1
1	G	264	ALA	3.1
1	H	54	ASP	3.1
1	I	92	PHE	3.1
1	B	112	ARG	3.1
1	F	53	GLN	3.1
1	I	27	VAL	3.1
1	I	118	ALA	3.1
1	I	117	THR	3.1
1	G	106	ALA	3.1
1	J	80	ARG	3.1
1	A	99	ASN	3.1
1	F	103	TRP	3.1
1	E	32	LEU	3.1
1	H	70	ASP	3.0
1	I	38	ALA	3.0
1	H	38	ALA	3.0
1	J	100	ALA	3.0
1	B	59	TYR	3.0
1	E	54	ASP	3.0
1	B	83	GLU	3.0
1	J	97	THR	3.0
1	F	41	TRP	3.0
1	J	66	LEU	3.0
1	J	103	TRP	3.0
1	B	265	ARG	3.0
1	A	97	THR	3.0
1	A	210	THR	3.0
1	J	29	THR	3.0
1	D	272	GLU	3.0
1	G	109	GLY	3.0
1	F	44	THR	2.9
1	B	52	GLY	2.9
1	D	269	LEU	2.9
1	H	126	LEU	2.9
1	H	56	PRO	2.9
1	H	58	SER	2.9
1	G	107	ARG	2.9
1	B	50	GLY	2.9
1	F	265	ARG	2.9
1	G	40	ASP	2.9

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	G	65	ARG	2.9
1	A	116	GLY	2.9
1	G	35	LYS	2.8
1	C	51	ILE	2.8
1	C	104	ILE	2.8
1	F	88	PHE	2.8
1	D	84	ARG	2.8
1	I	35	LYS	2.8
1	J	107	ARG	2.8
1	B	49	LEU	2.8
1	D	39	LEU	2.8
1	E	66	LEU	2.8
1	G	126	LEU	2.8
1	C	74	VAL	2.8
1	F	94	VAL	2.8
1	E	59	TYR	2.8
1	B	27	VAL	2.8
1	C	86	GLY	2.8
1	H	50	GLY	2.8
1	H	99	ASN	2.8
1	E	113	ASP	2.7
1	G	60	ASP	2.7
1	G	55	GLN	2.7
1	C	77	ALA	2.7
1	J	40	ASP	2.7
1	F	214	HIS	2.7
1	H	266	LEU	2.7
1	J	47	THR	2.7
1	I	119	ARG	2.7
1	G	53	GLN	2.7
1	A	121	LEU	2.7
1	B	77	ALA	2.7
1	E	60	ASP	2.6
1	H	271	SER	2.6
1	D	86	GLY	2.6
1	A	216	ILE	2.6
1	B	211	SER	2.6
1	H	272	GLU	2.6
1	C	65	ARG	2.6
1	A	211	SER	2.6
1	E	122	SER	2.6
1	D	216	ILE	2.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	266	LEU	2.6
1	B	98	SER	2.6
1	A	268	GLU	2.6
1	G	215	ILE	2.6
1	E	265	ARG	2.6
1	H	108	ALA	2.6
1	E	27	VAL	2.6
1	D	94	VAL	2.6
1	I	63	LEU	2.6
1	B	53	GLN	2.5
1	D	97	THR	2.5
1	J	83	GLU	2.5
1	C	68	PRO	2.5
1	E	37	TRP	2.5
1	G	213	PRO	2.5
1	J	70	ASP	2.5
1	H	26	GLY	2.5
1	H	269	LEU	2.5
1	J	261	GLN	2.5
1	F	120	HIS	2.5
1	F	81	VAL	2.5
1	J	58	SER	2.5
1	B	125	PHE	2.5
1	A	84	ARG	2.5
1	D	51	ILE	2.5
1	H	123	GLY	2.5
1	G	113	ASP	2.4
1	F	130	GLU	2.4
1	G	93	ARG	2.4
1	F	212	ASP	2.4
1	G	68	PRO	2.4
1	E	115	ALA	2.4
1	G	69	ASP	2.4
1	G	99	ASN	2.4
1	C	46	ARG	2.4
1	A	215	ILE	2.4
1	I	104	ILE	2.4
1	E	92	PHE	2.4
1	D	270	GLN	2.4
1	C	213	PRO	2.4
1	B	34	LEU	2.4
1	H	64	SER	2.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	F	26	GLY	2.3
1	F	268	GLU	2.3
1	F	249	PHE	2.3
1	H	79	LYS	2.3
1	H	104	ILE	2.3
1	C	120	HIS	2.3
1	B	85	GLY	2.3
1	G	101	GLY	2.3
1	H	107	ARG	2.3
1	J	57	ALA	2.3
1	D	53	GLN	2.3
1	F	263	GLN	2.3
1	G	75	GLU	2.3
1	J	92	PHE	2.3
1	I	109	GLY	2.3
1	F	61	LEU	2.3
1	I	264	ALA	2.3
1	G	238	ILE	2.3
1	G	94	VAL	2.3
1	I	71	ARG	2.3
1	G	110	LEU	2.2
1	G	214	HIS	2.2
1	H	35	LYS	2.2
1	I	59	TYR	2.2
1	F	124	ILE	2.2
1	I	114	GLU	2.2
1	G	49	LEU	2.2
1	G	125	PHE	2.2
1	E	107	ARG	2.2
1	J	102	GLN	2.2
1	H	33	ASP	2.2
1	E	126	LEU	2.2
1	G	170	THR	2.2
1	I	132	LYS	2.2
1	H	77	ALA	2.2
1	I	46	ARG	2.2
1	G	66	LEU	2.2
1	B	25	PHE	2.2
1	B	46	ARG	2.1
1	I	103	TRP	2.1
1	E	117	THR	2.1
1	C	216	ILE	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	F	104	ILE	2.1
1	E	266	LEU	2.1
1	G	86	GLY	2.1
1	J	26	GLY	2.1
1	A	62	PHE	2.1
1	F	122	SER	2.1
1	I	122	SER	2.1
1	C	59	TYR	2.1
1	D	96	GLY	2.1
1	E	33	ASP	2.1
1	E	100	ALA	2.1
1	J	264	ALA	2.1
1	C	61	LEU	2.1
1	G	132	LYS	2.1
1	E	272	GLU	2.1
1	C	38	ALA	2.1
1	B	117	THR	2.1
1	F	30	TRP	2.1
1	C	22	ILE	2.1
1	E	108	ALA	2.1
1	E	124	ILE	2.1
1	H	238	ILE	2.1
1	C	108	ALA	2.1
1	E	79	LYS	2.1
1	C	81	VAL	2.1
1	H	132	LYS	2.1
1	H	155	ALA	2.1
1	I	174	ARG	2.1
1	D	266	LEU	2.0
1	F	218	ILE	2.0
1	C	60	ASP	2.0
1	I	80	ARG	2.0
1	B	38	ALA	2.0
1	B	79	LYS	2.0
1	H	260	GLN	2.0
1	I	263	GLN	2.0
1	H	110	LEU	2.0
1	B	58	SER	2.0
1	E	40	ASP	2.0
1	J	28	GLY	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.

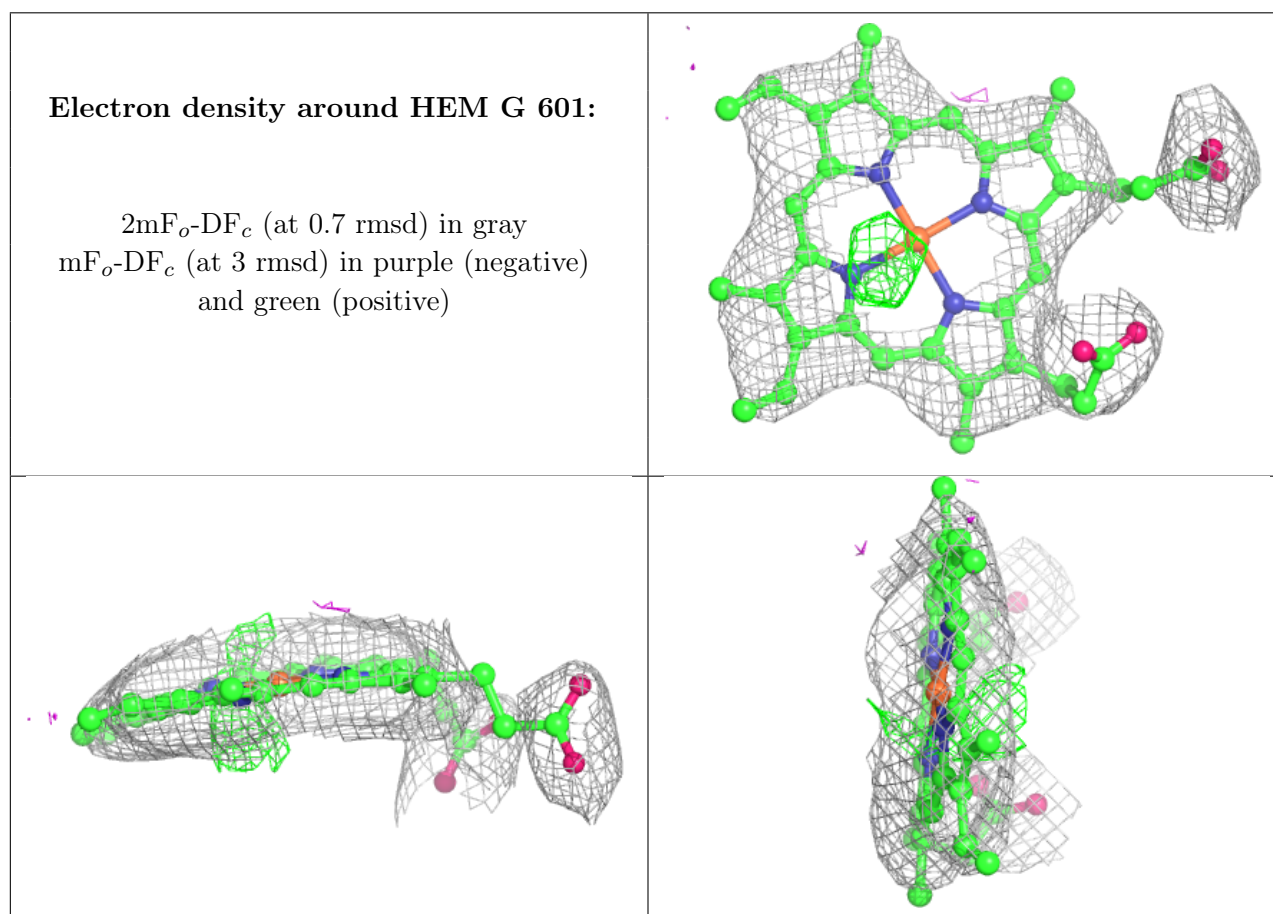
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	GOL	J	302	6/6	0.89	0.72	91,94,99,107	0
4	GOL	A	604	6/6	0.90	0.30	75,80,87,90	0
4	GOL	I	603	6/6	0.91	0.31	93,103,107,117	0
4	GOL	J	301	6/6	0.91	0.29	89,90,91,98	0
4	GOL	E	604	6/6	0.91	0.28	82,98,98,98	0
4	GOL	A	603	6/6	0.93	0.53	74,78,83,83	0
4	GOL	C	603	6/6	0.93	0.34	63,83,85,88	0
4	GOL	F	301	6/6	0.94	0.27	84,85,94,95	0
4	GOL	B	301	6/6	0.94	0.27	70,81,83,83	0
4	GOL	G	604	6/6	0.96	0.25	90,98,99,101	0
4	GOL	D	301	6/6	0.96	0.24	72,79,81,82	0
4	GOL	E	603	6/6	0.96	0.61	79,83,85,89	0
4	GOL	G	603	6/6	0.96	0.33	84,86,87,94	0
2	HEM	G	601	43/43	0.97	0.24	76,98,128,137	0
4	GOL	D	302	6/6	0.97	0.66	73,75,82,84	0
2	HEM	I	601	43/43	0.98	0.26	86,108,129,141	0
2	HEM	J	303	43/43	0.98	0.27	88,112,136,147	0
3	CYN	F	303	2/2	0.98	0.41	98,98,98,106	0
3	CYN	G	602	2/2	0.98	0.30	101,101,101,102	0
2	HEM	D	303	43/43	0.98	0.24	56,74,102,118	0
2	HEM	E	601	43/43	0.98	0.24	76,82,99,109	0
4	GOL	H	301	6/6	0.98	0.23	84,95,95,96	0
2	HEM	F	302	43/43	0.98	0.23	80,98,120,131	0
2	HEM	A	601	43/43	0.98	0.24	53,69,97,109	0
2	HEM	H	302	43/43	0.98	0.26	77,92,115,126	0
2	HEM	B	302	43/43	0.99	0.23	65,80,103,114	0
3	CYN	I	602	2/2	0.99	0.30	101,101,101,114	0

Continued on next page...

Continued from previous page...

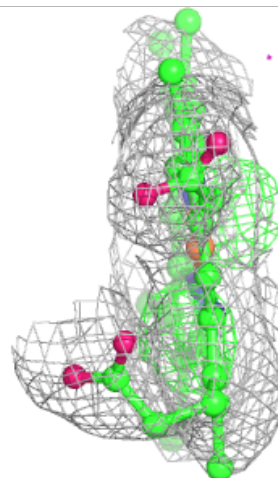
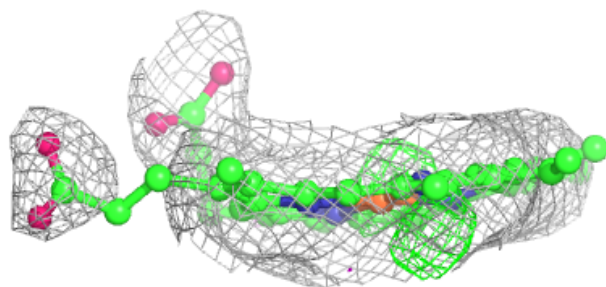
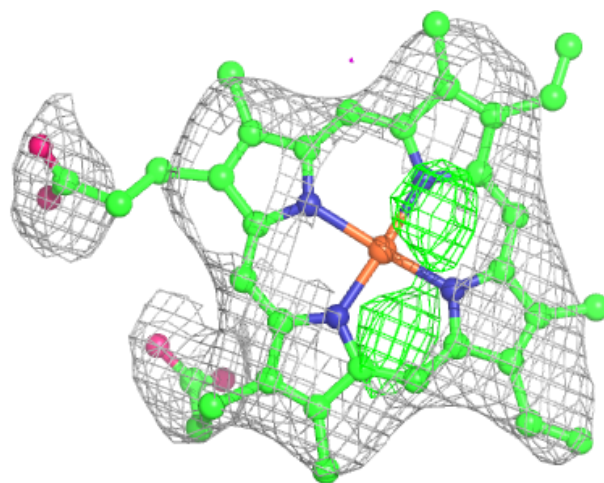
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	CYN	J	304	2/2	0.99	0.26	112,112,112,113	0
3	CYN	A	602	2/2	0.99	0.34	68,68,68,76	0
3	CYN	B	303	2/2	0.99	0.34	74,74,74,80	0
3	CYN	C	602	2/2	0.99	0.32	89,89,89,91	0
3	CYN	D	304	2/2	0.99	0.38	74,74,74,98	0
3	CYN	E	602	2/2	0.99	0.27	79,79,79,83	0
2	HEM	C	601	43/43	0.99	0.26	67,85,128,133	0
3	CYN	H	303	2/2	1.00	0.32	98,98,98,102	0

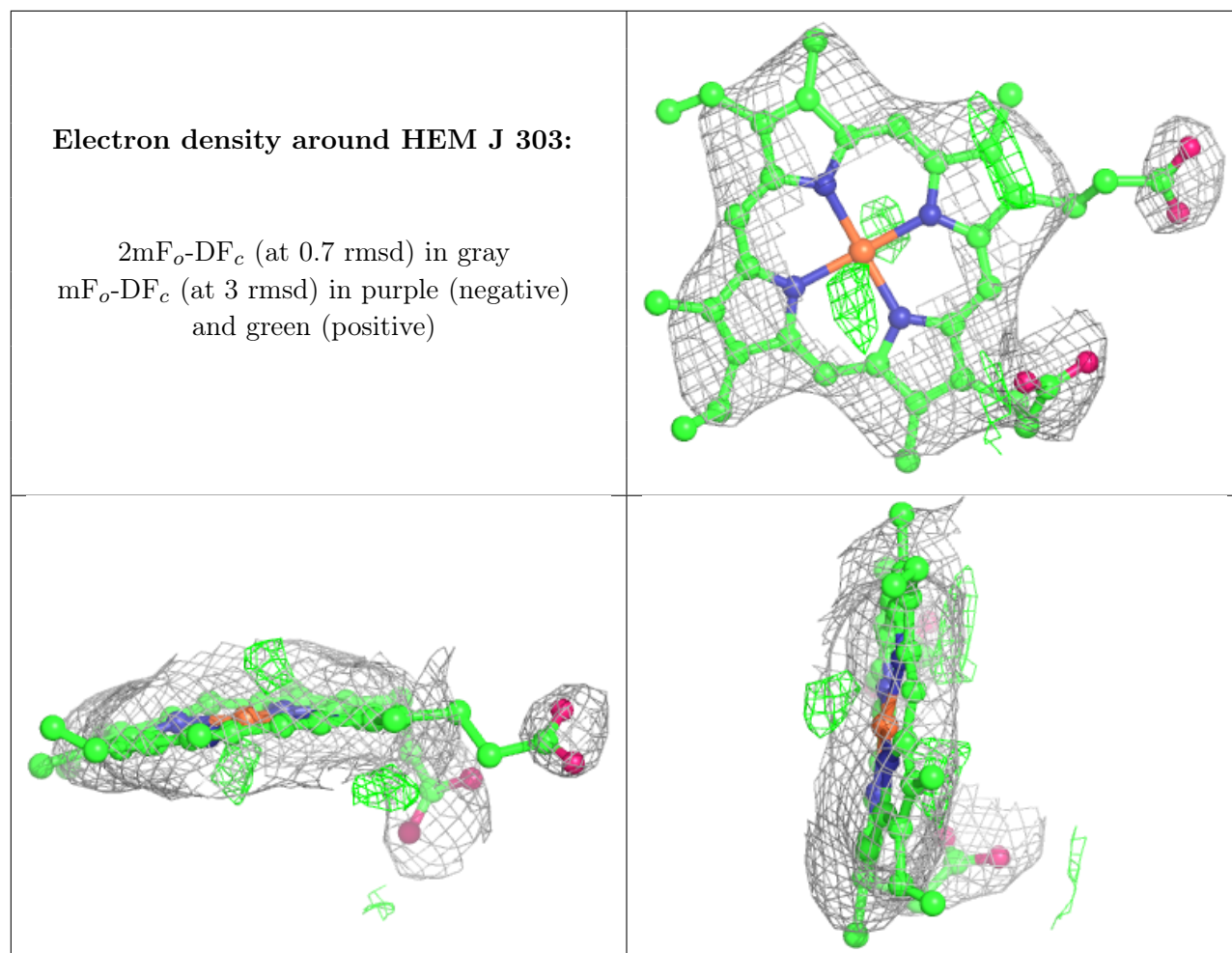
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

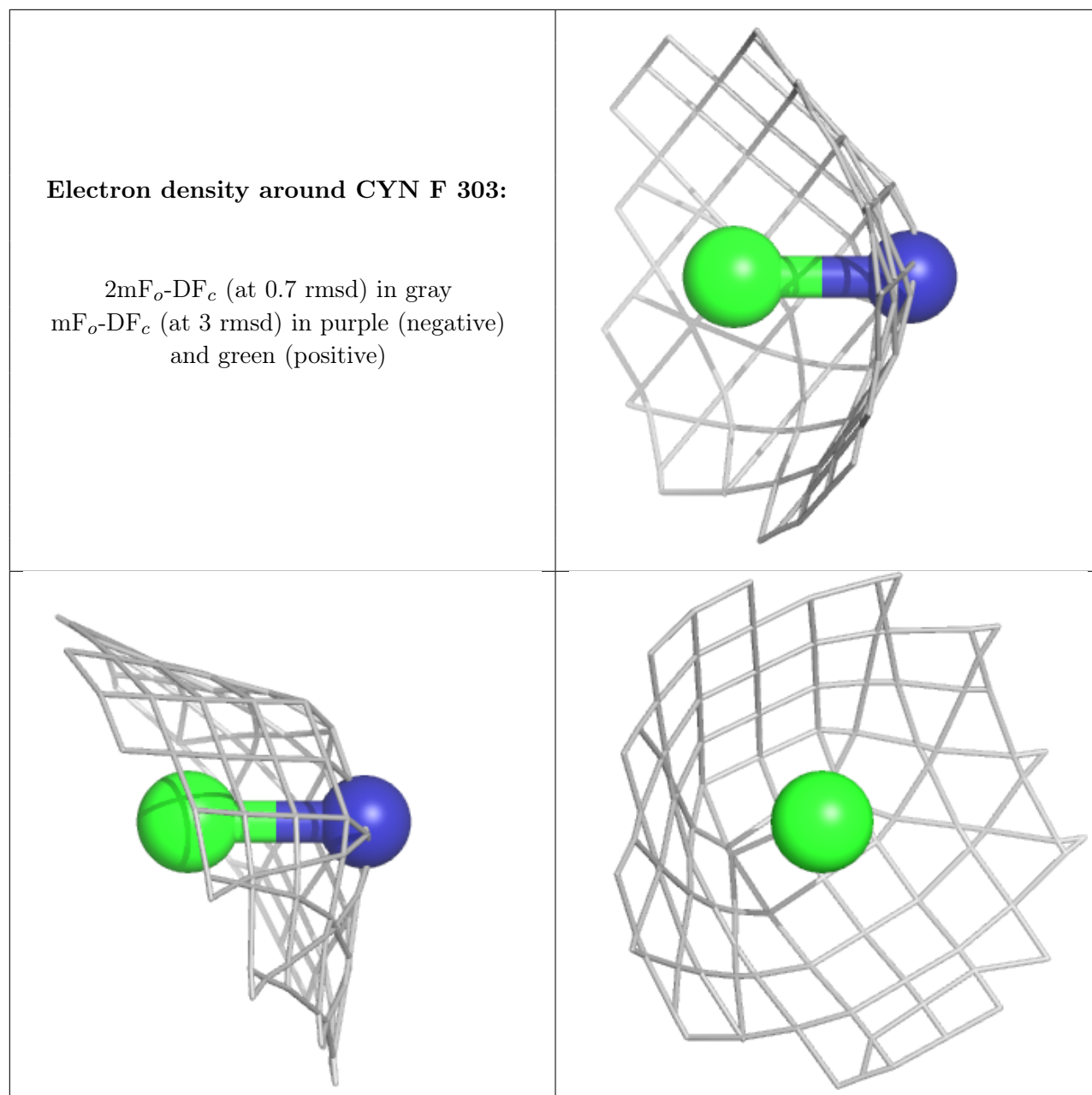


Electron density around HEM I 601:

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

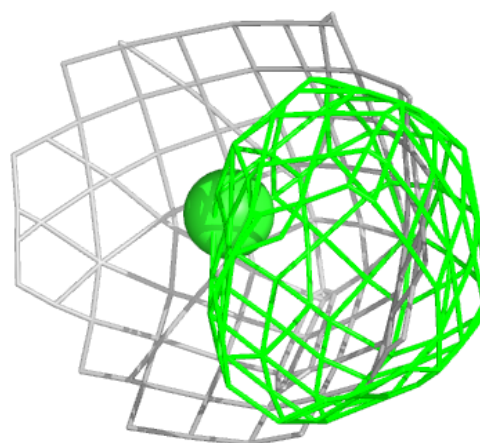
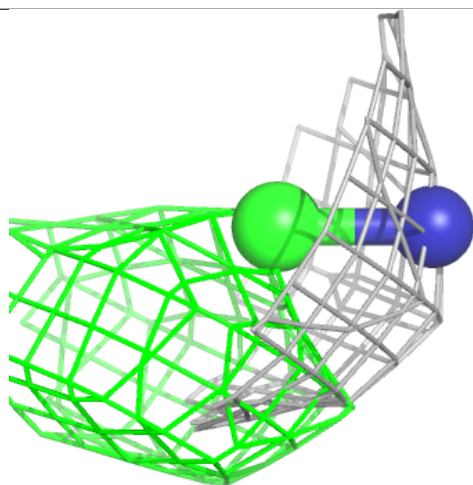
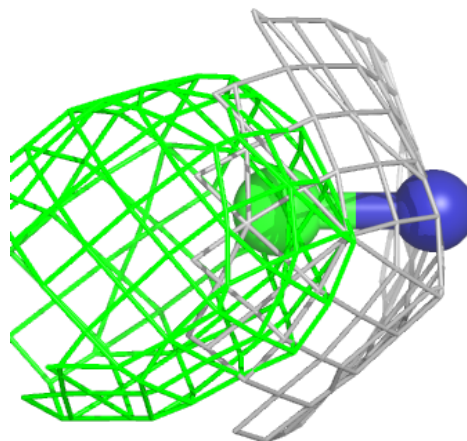






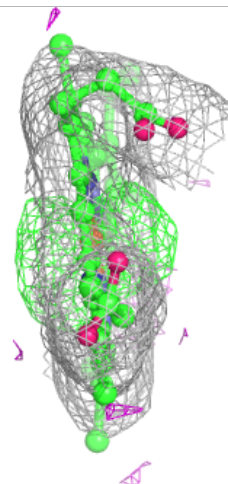
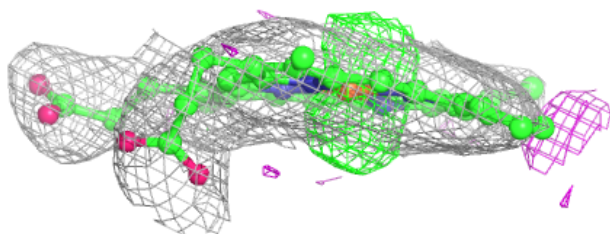
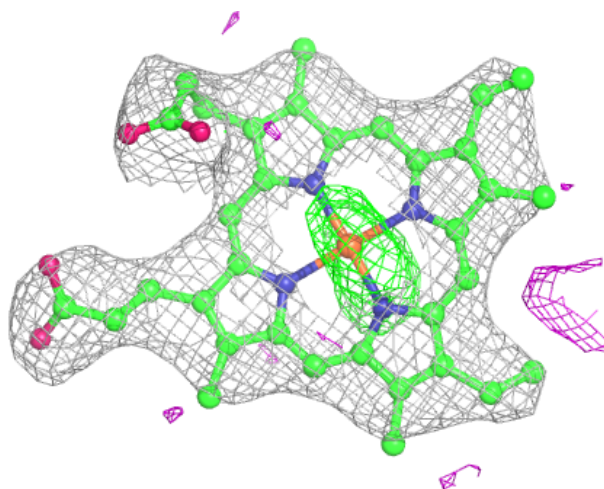
Electron density around CYN G 602:

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



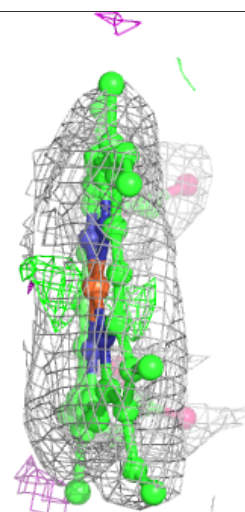
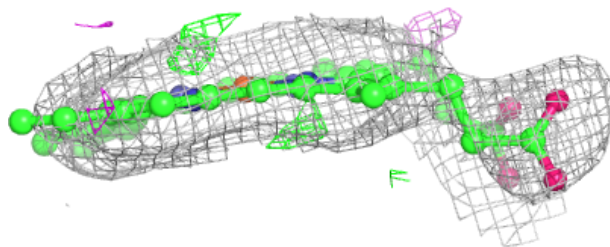
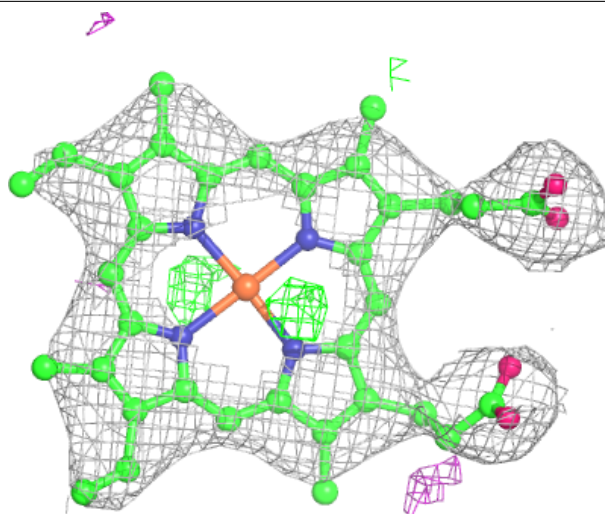
Electron density around HEM D 303:

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



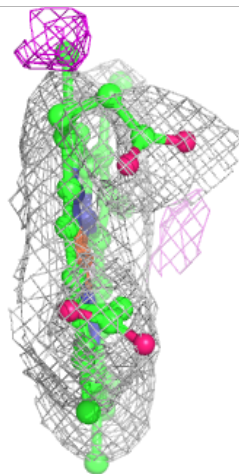
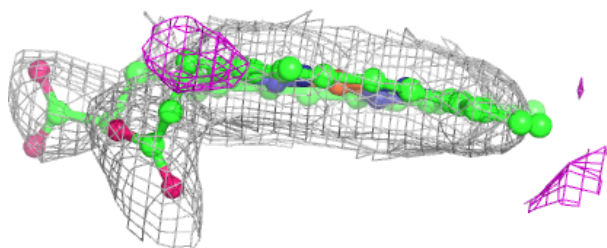
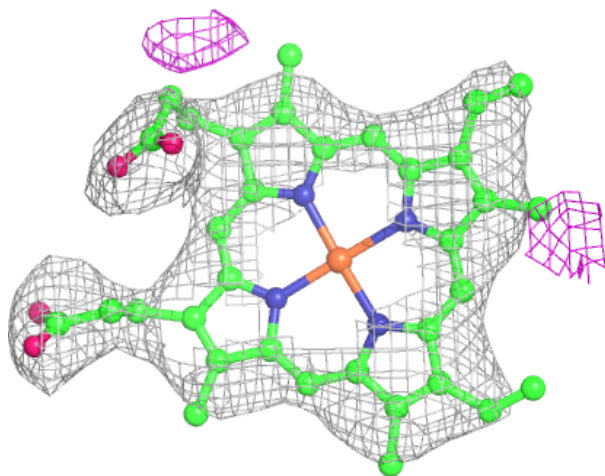
Electron density around HEM E 601:

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



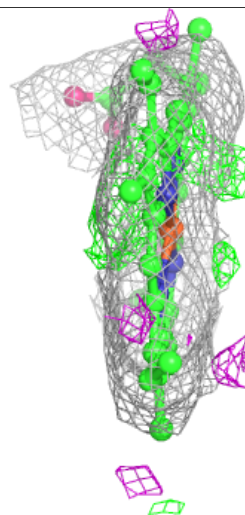
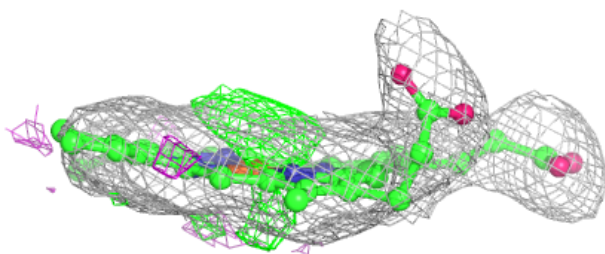
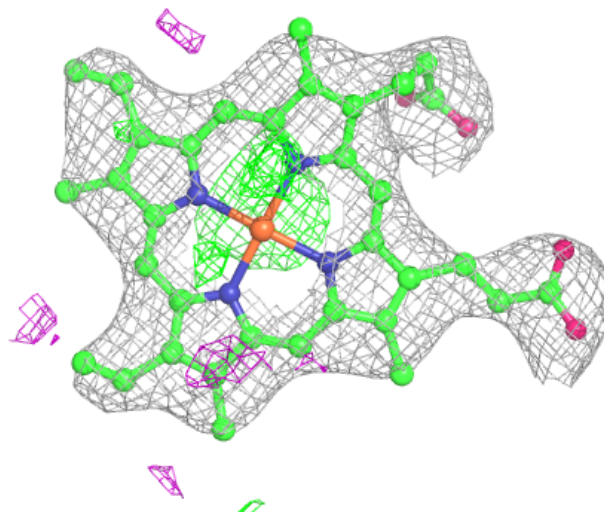
Electron density around HEM F 302:

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



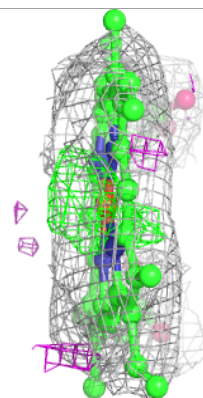
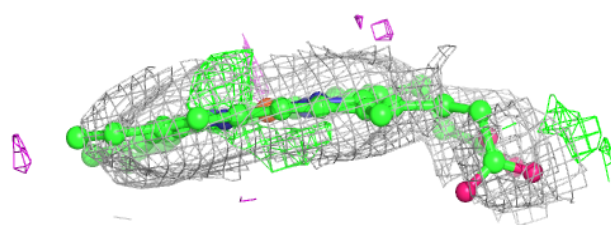
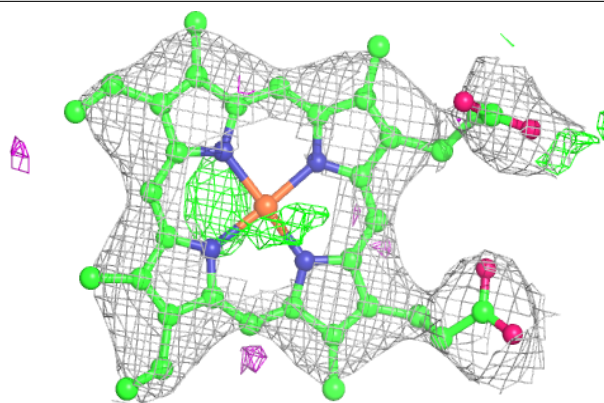
Electron density around HEM A 601:

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

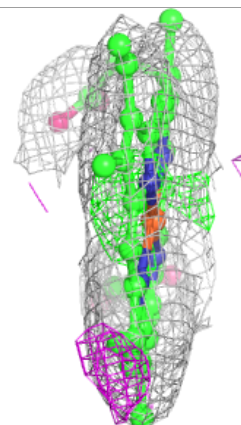
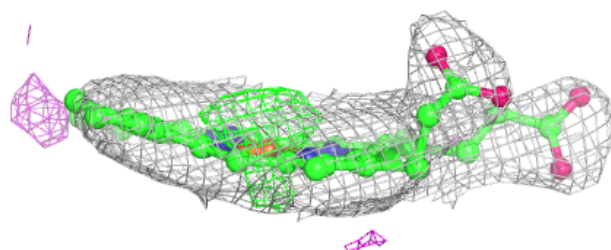
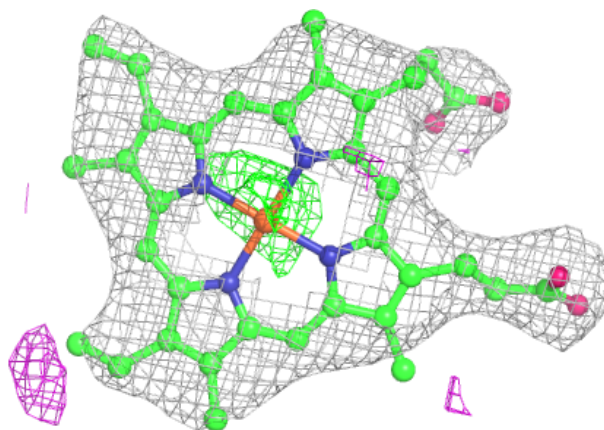


Electron density around HEM H 302:

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

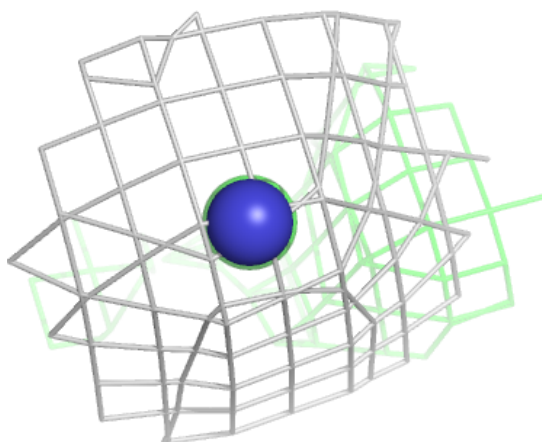
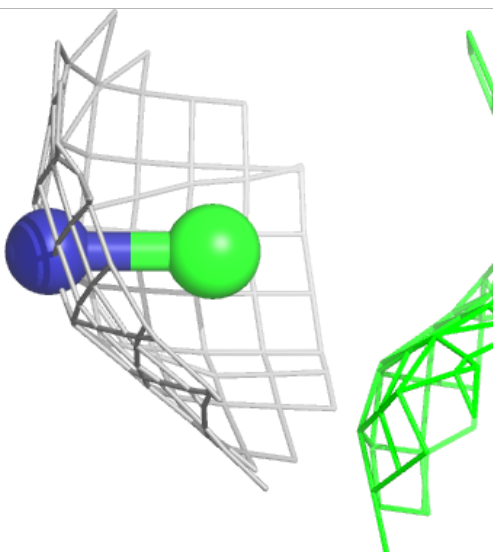
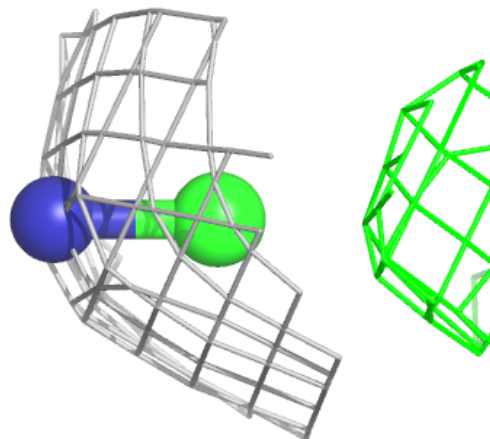
**Electron density around HEM B 302:**

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



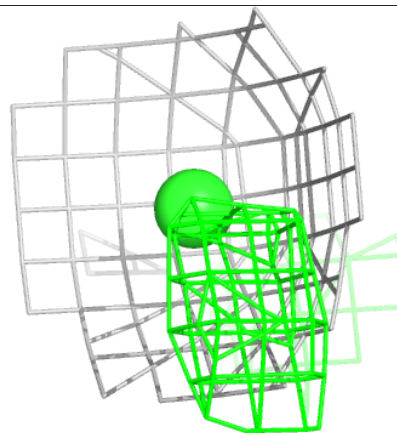
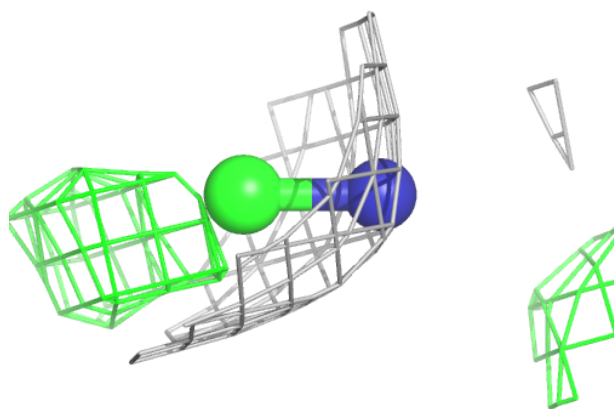
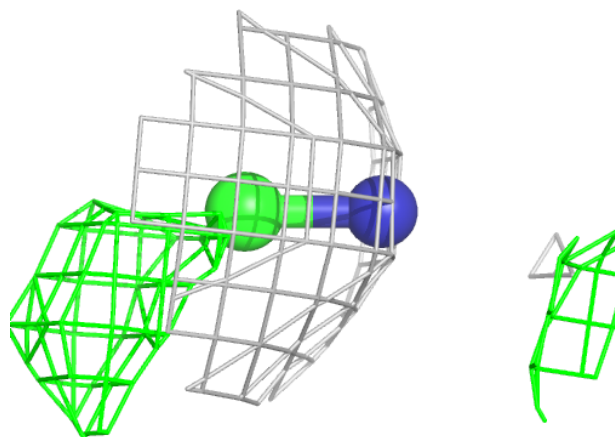
Electron density around CYN I 602:

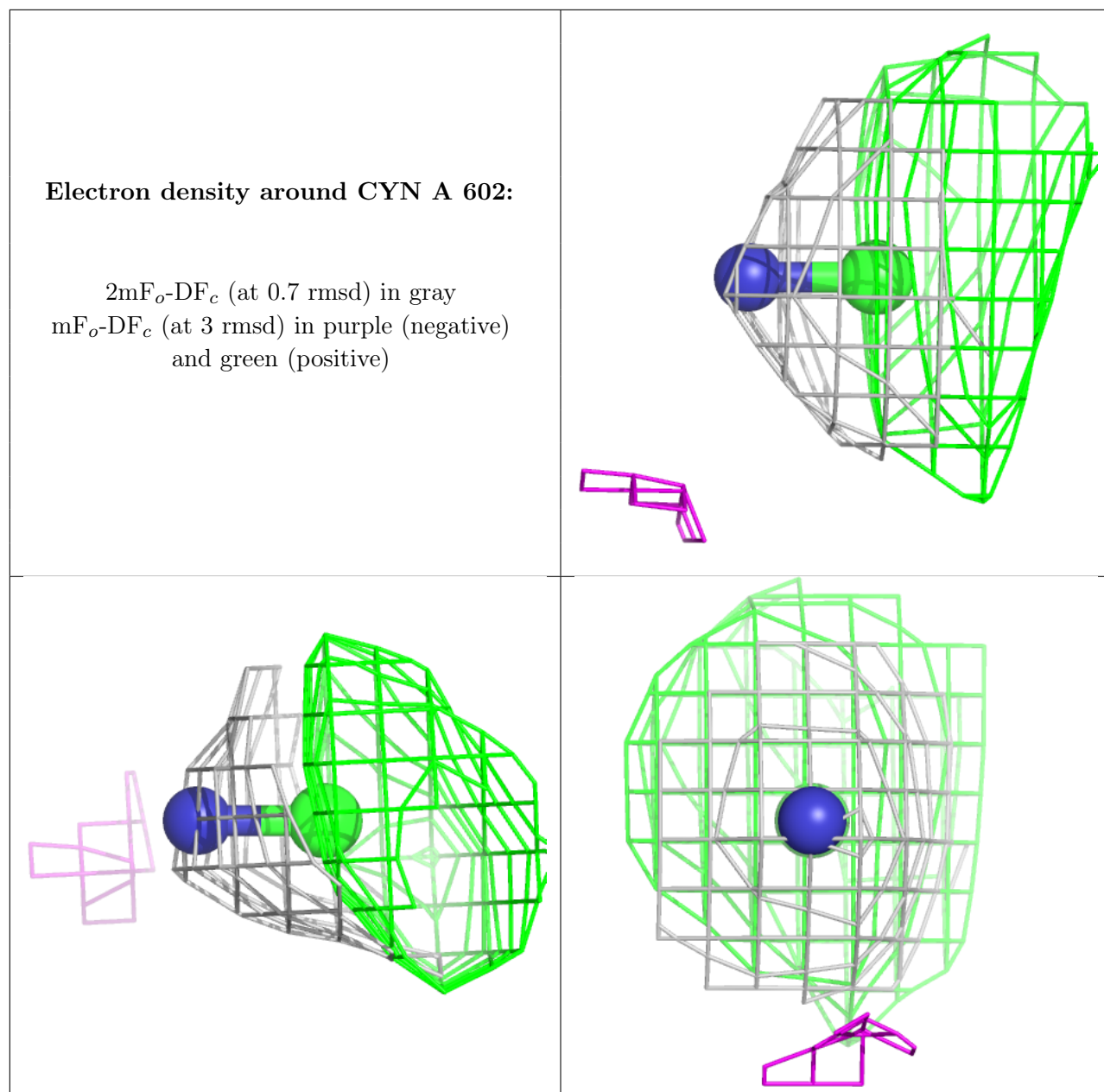
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around CYN J 304:

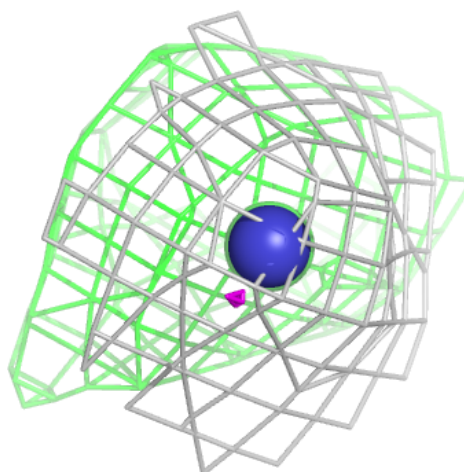
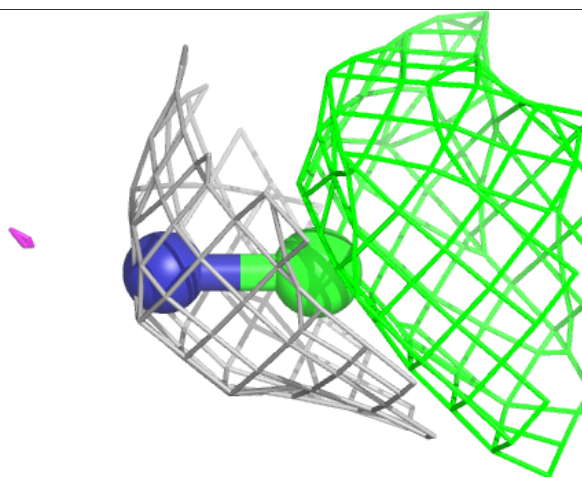
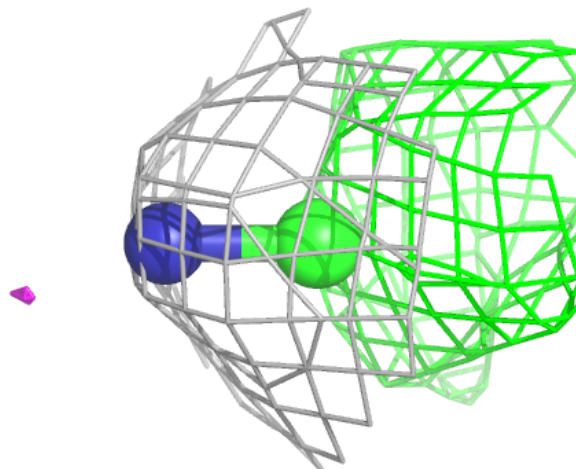
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





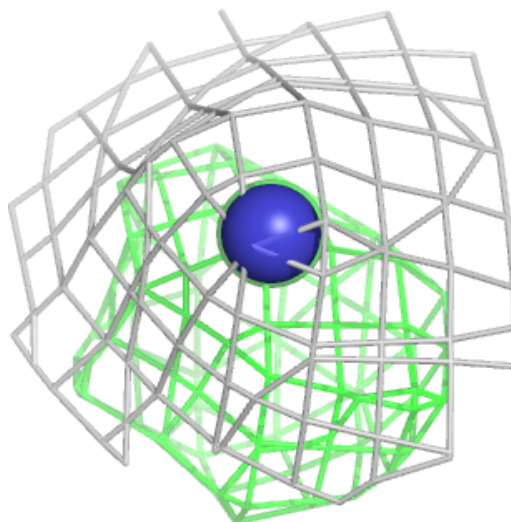
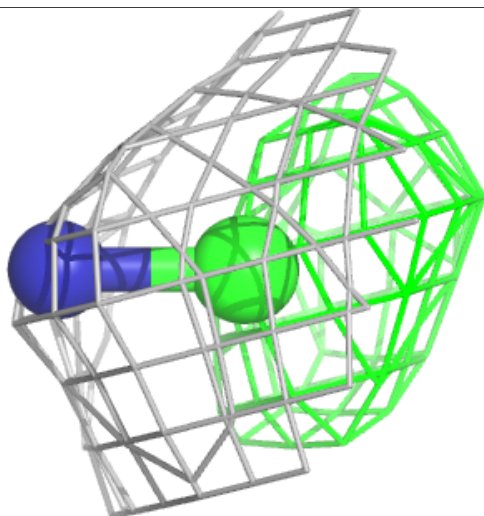
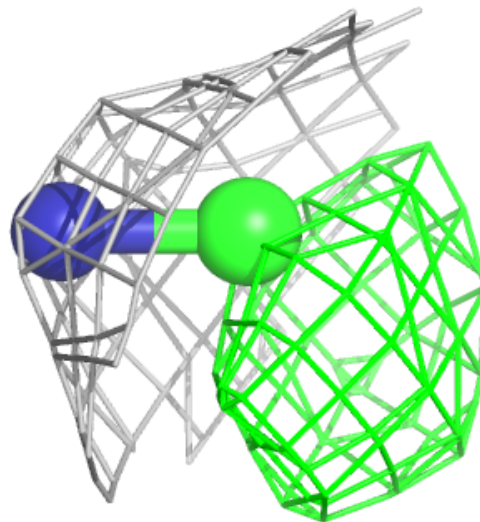
Electron density around CYN B 303:

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



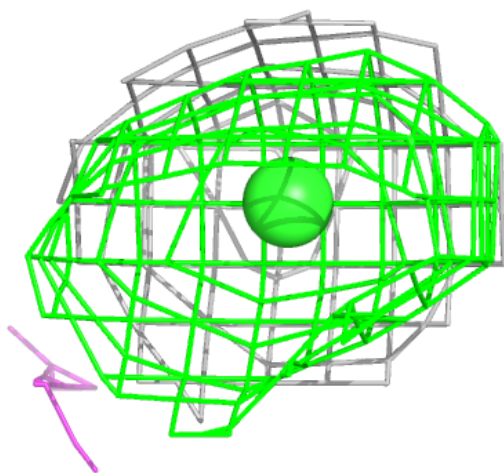
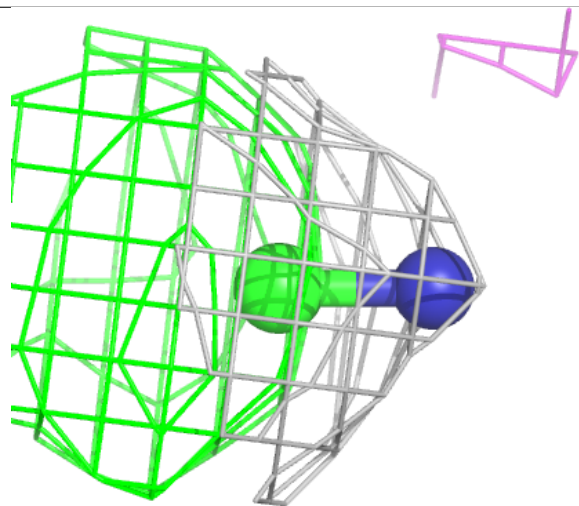
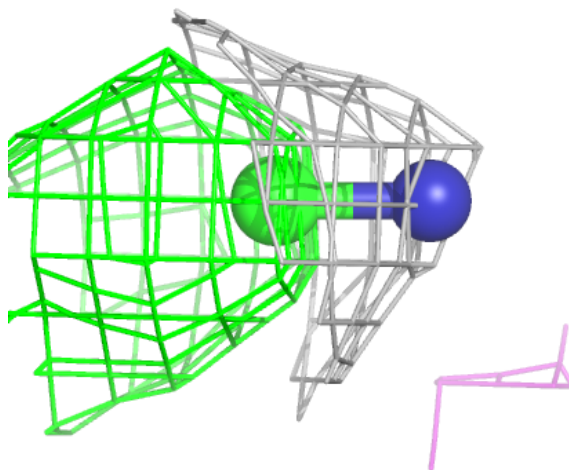
Electron density around CYN C 602:

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



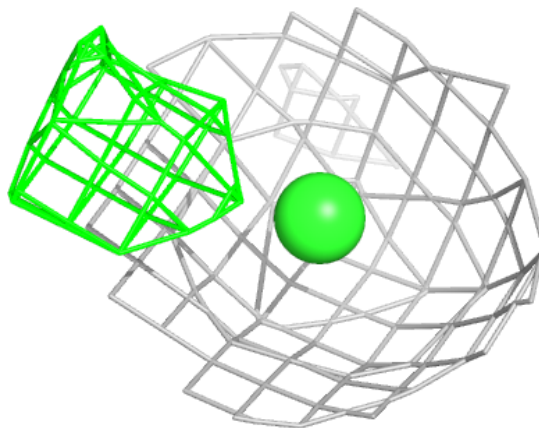
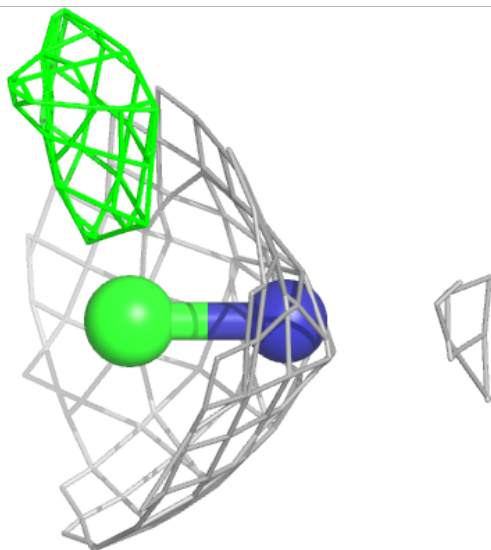
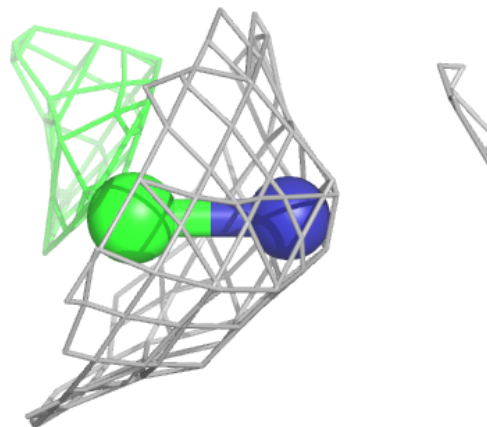
Electron density around CYN D 304:

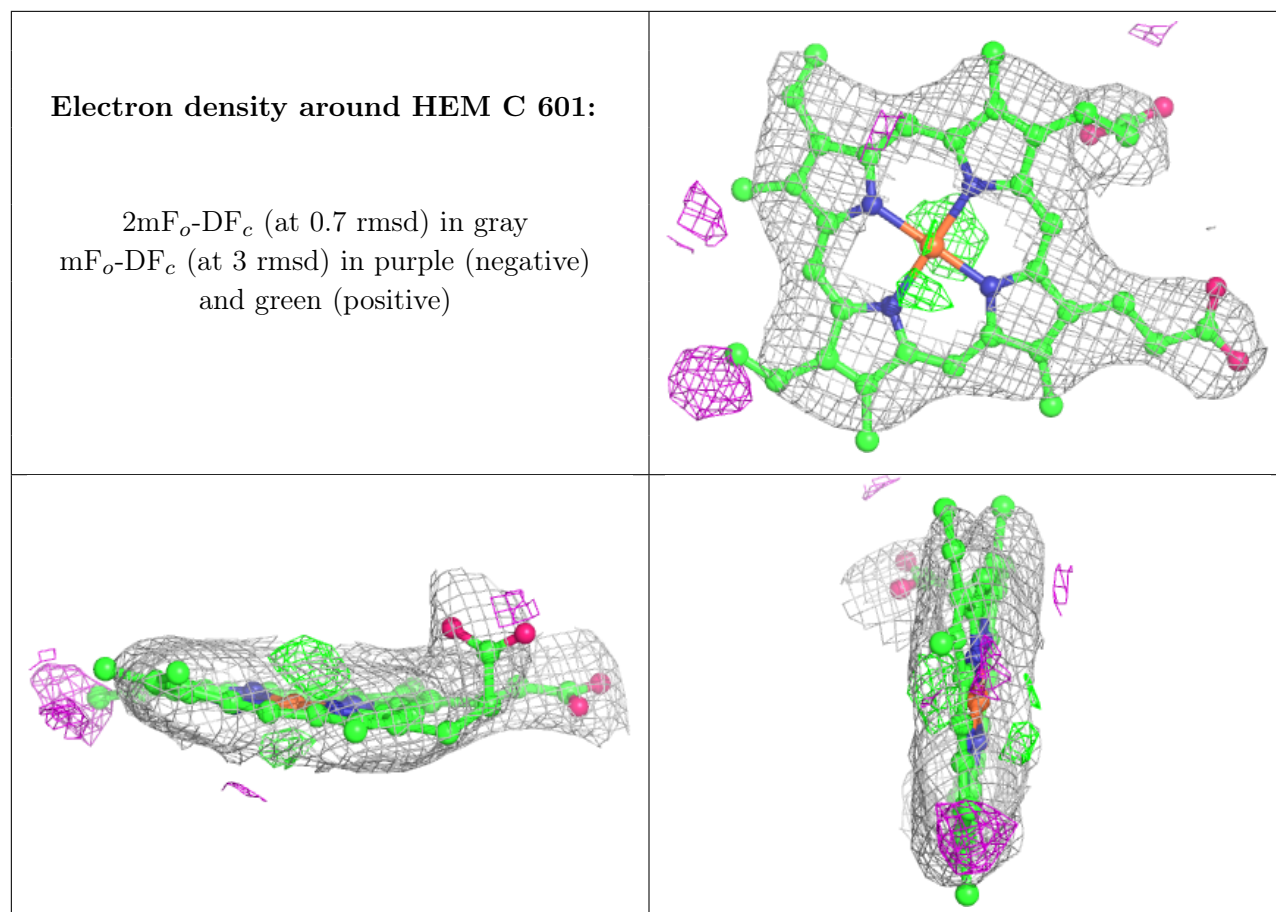
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

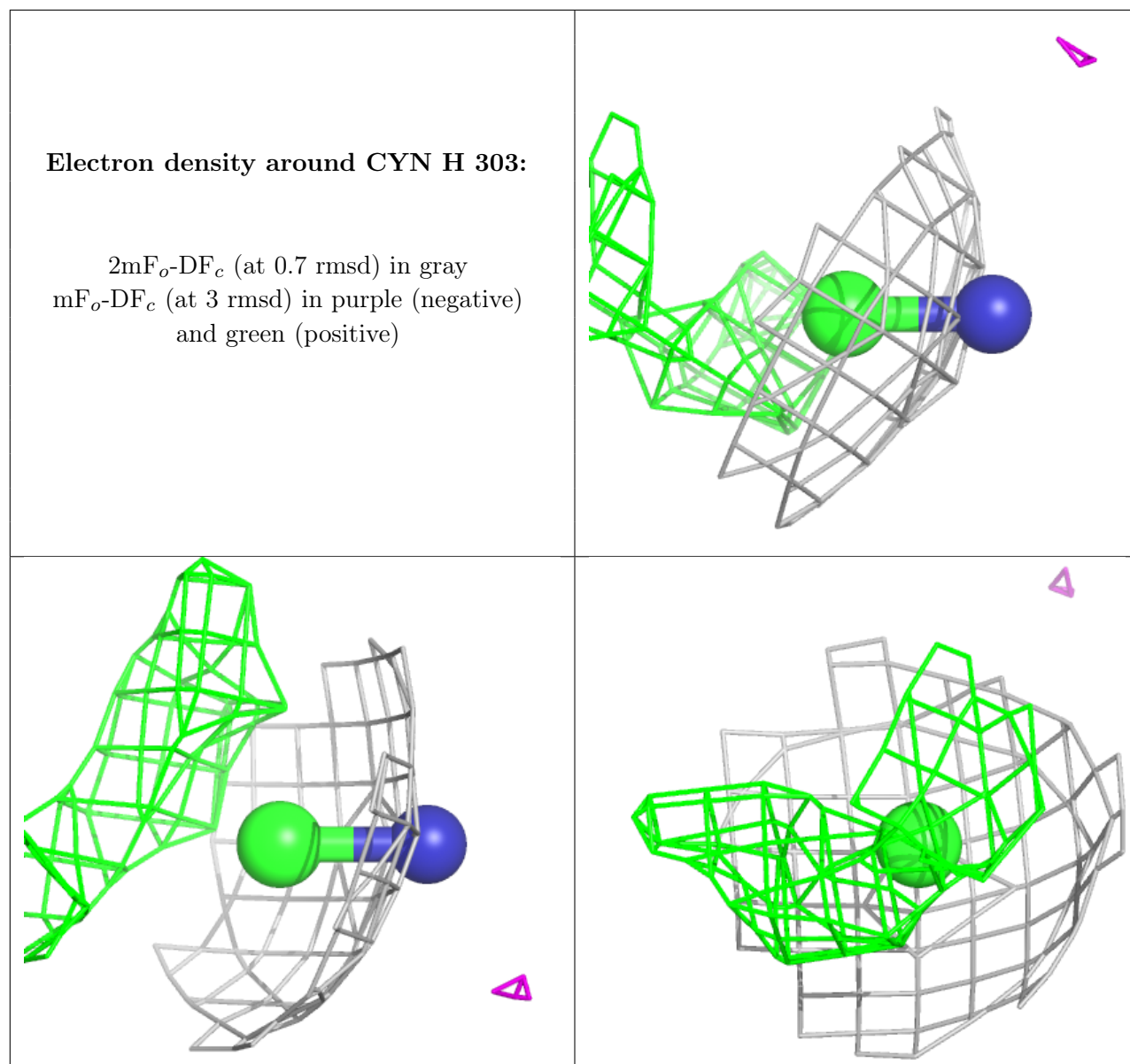


Electron density around CYN E 602:

$2mF_o-DF_c$ (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.